

MOTOR AGE

Vol. VII No. 13

CHICAGO, MARCH 30, 1905

Ten Cents



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I ASKED DAD THE OTHER DAY
IF HE COULD FORGET HIS
MORGAN & WRIGHT TIRES
LONG ENOUGH TO TELL
ME WHY THE JAPS



ARE SUCH GOOD
SCRAPPERS, AND HE
SAID—AFTER THINKIN'
A BIT—"BRICK, IT'S



HE SAYS
HE USED

THE STUFF
THEY'RE MADE
OF, THAT'S WHY
—JUST AS



TO USE
TIRES THAT
COULD N'T
STAND UP
ANY BETTER

IT IS
WITH
MY
TIRE 5"



THAN THE
RUSSIANS CAN



We can furnish indisputable proof that Morgan &
Wright tires are good tires;
Proof of the superior grade of material used;
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MOTOR AGE

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\$2.00 Per Year

SHOW CIRCUIT ENDS AT NATIONAL CAPITAL



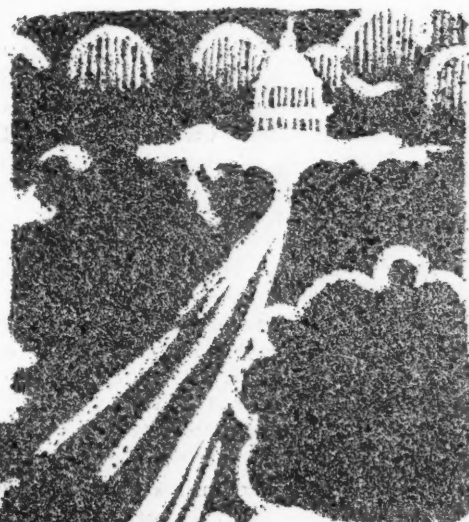
WASHINGTON, D. C., March 27—Let it be stated in the opening paragraph that the Washington local automobile show is a success, if a big crowd and unbounded enthusiasm

of the opening night can be taken as meaning show success. When the lights were turned on in the big electric sign outside the Light Infantry armory, bearing the magic words, "Automobile Show," a long string of cars was lined up on Fifteenth street and hundreds of prominent Washingtonians slowly wended their way through the doors and were confronted with the finest collection of automobiles ever gathered together south of Philadelphia.

Of course there was lots of "paper" in the big hall, but the MOTOR AGE man saw Manager Washington counting up the receipts of the evening and judging from the huge pile of money he had in front of him, the paid admissions must have been numerous. It is quite evident that the automobile show is becoming more and more of a society event with each succeeding year. Hundreds in tonight's throng were attired in conventional evening clothes, while with hardly a single exception the exhibitors and their staffs were in full dress and tuxedo coats. Ladies in magnificent gowns paraded up and down the aisles and whenever the opportunity

presented itself they perched themselves in the big touring cars, and looked down upon their less fortunate sisters with something like a gleam of triumph in their eyes. It was certainly a great occasion for the ladies and their presence helped to complete the picture presented in the hall. This year's decorations and electrical effects are about the same as at the last show. Visitors to automobile shows now come to see the cars and are satisfied if the decorative scheme is only passing fair.

Unlike Detroit and Cleveland, Washington greeted its automobile show with splendid weather. Spring in all its pristine beauty has at last arrived, and the heart of the

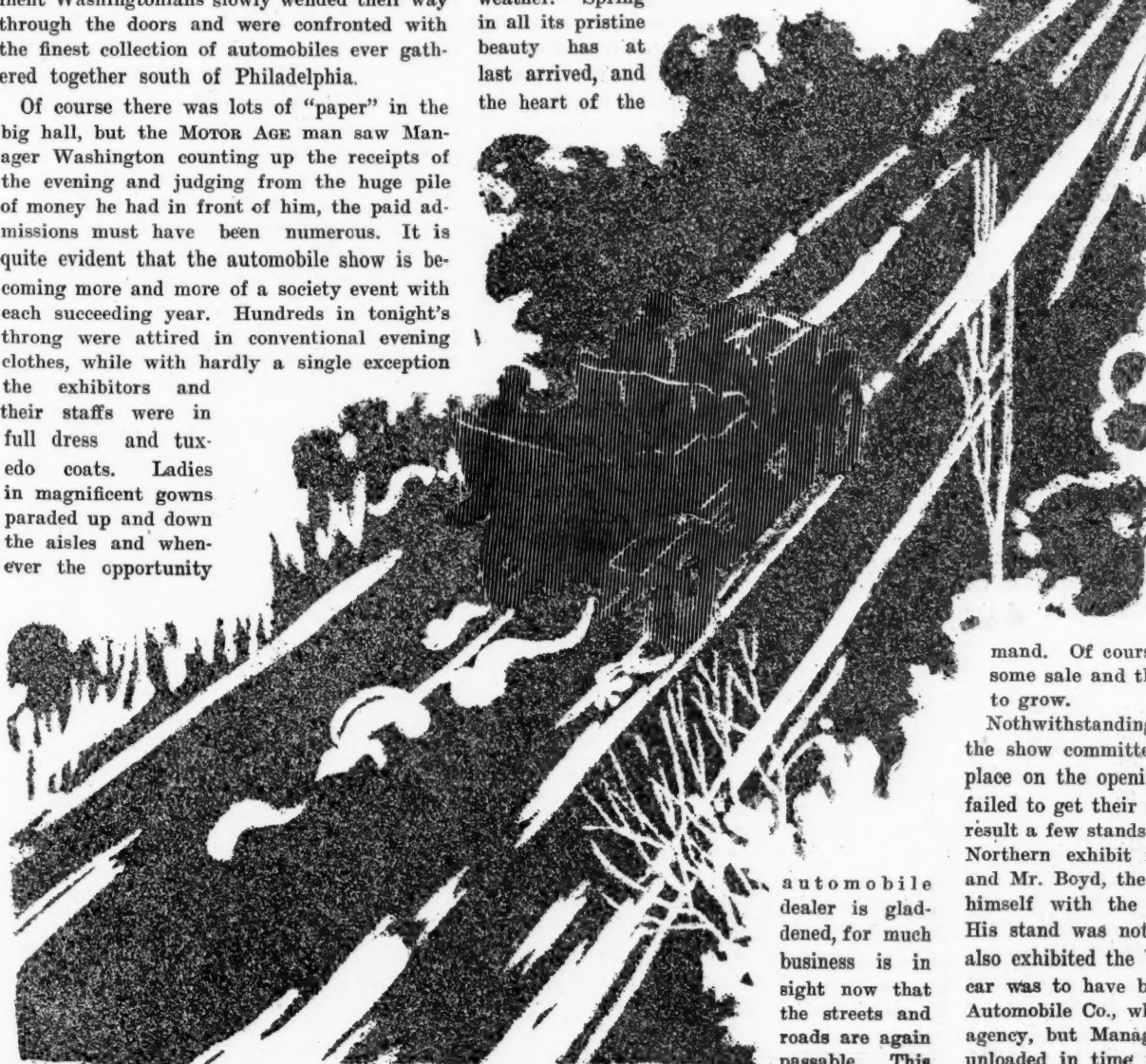


show is sure to boost the game, for it is being held just as the season is opening. The MOTOR AGE man questioned all the principal exhibitors as to the outlook this year and without a single exception they agreed that in this year of our Lord 1905, the amount of automobile business would be far and away ahead of any previous year. Washington is essentially a city of small cars and runabouts and small touring cars will continue to be in the greatest demand.

Of course the larger cars will have some sale and the demand for them is sure to grow.

Notwithstanding the strenuous efforts of the show committee to have every exhibit in place on the opening night, several exhibitors failed to get their machines on time, and as a result a few stands were bare of exhibits. The Northern exhibit is somewhere on the road and Mr. Boyd, the local agent, had to content himself with the distribution of catalogues. His stand was not neglected, however, for he also exhibited the Warner autometer. A Buick car was to have been shown by the National Automobile Co., who has just taken the Buick agency, but Manager Wood could not get it unloaded in time for the opening.

automobile dealer is gladdened, for much business is in sight now that the streets and roads are again passable. This





GARAGE OF AMOS-PIERCE AUTOMOBILE CO., OF SYRACUSE, DURING SHOW HELD THERE LAST WEEK

The inadequacy of the armory for a show at this stage of the game is apparent. Every available inch of space is occupied and no less than 10 late applicants were perforce turned down. Manager Washington tried his best to meet the demands made upon him for space, but the size of the armory compelled him to call a halt, with the result that some dissatisfaction was expressed by those who failed to get in. The show is given by the Washington Automobile Dealers' Association, and naturally those in the organization had first choice in the allotment of space. Those outside the association came next, and then what was left was given to first applicants outside the city.

Last year but a single tire was shown; this year an even half dozen makes are exhibited and visitors seemed to be greatly interested in the tire question.

Never before at a local show have the exhibitors devoted the time and attention to demonstrations that they have this year. Every exhibitor has from one to half a dozen demonstration cars on duty outside the armory and while they are constantly filled with many parties desiring a ride, efforts are being made to confine the demonstrations to likely purchasers. The armory is ideally situated for the demonstrators, being located at the entrance to the big park back of the executive mansion. Fine macadamized roads prevail throughout this park and it leads to the new speedway running along the bank of the Potomac for some distance.

Coming down to the exhibits, it may be mentioned that some of them are very extensive. For instance the Washington branch of the Pope Mfg. Co. has two or three models of each of the Pope products and the stand where they are displayed being located near the entrance door, the cars are the first there are to be seen. Manager Hough had his hooks out for customers at the very beginning and expects to close some mighty good sales before the week is over.

The National Automobile Co. has a block of space along the south wall, where an even dozen machines are displayed, including the Oldsmobile, Packard, Studebaker and Orient.

Big displays are also made by the Cook & Stoddard Co., Winton, White, Baker and Cadillac agents; Washington Electric Vehicle Transportation Co., Columbia gasoline and Columbia electrics, and the Maryland Auto-

mobile Co., of Baltimore and Washington, Knox selling agents in this territory.

The full list of exhibitors follows:

Crawford Mfg. Co., Crawford runabout and chassis.

Electric Storage Battery Co., Exide batteries.

Twyford Motor Car Co., Twyford touring car and chassis.

Edwin A. Newman & Co., National touring car.

J. N. Williams, Hartford gasoline marine engine, MacRae storage batteries and Henrick's gas engine sparkers.

Haynes Automobile Co., Haynes-Apperson cars.

National Automobile Co., Packard, Orient, Oldsmobile, Studebaker cars.

National Electric Supply Co., Diamond and Michelin tires, Neverout lamps, Whitney chains, Veeder odometers, Jones speedometers, Gleason-Peters pumps, Prest-o-lite gas tanks, and miscellaneous automobile supplies.

Columbian Auto Co., Franklin cars.

Chas. E. Miller & Bro., Ford cars.

B. F. Goodrich Co., Goodrich tires.

Pope Mfg. Co., the full Pope line of cars.

Washington Electric Vehicle Transportation Co., Columbia gasoline and electric cars.

Cook & Stoddard Co., Winton, Baker electric, White steam and Cadillac cars.

Fisk Rubber Co., Fisk tires.

J. L. Gibney & Bros., Continental tires.

Standard Oil Co., Mobiloil.

Stanley M. Boyd, Northern cars and Warner autometers.

S. F. Bowser & Co., Bowser gasoline tanks.

Hartford Rubber Works Co., Hartford tires.

Maryland Automobile Co., Knox cars.

Jewell Mfg. Co., leather dressing.

Goodyear Tire & Rubber Co., Goodyear tires.

Wayne Automobile Co., of Washington, Wayne cars.

There was much laughter around the show tonight over the outcome of the case against Louis Ruprecht, manager of the Washington Electric Vehicle Transportation Co., who was hauled into the police court this morning on a charge of running an automobile on Pennsylvania avenue at a greater speed than 12 miles an hour. Mr. Ruprecht made the ingenious plea that he thought he was immune from arrest by reason of the fact that he had a member of President Roosevelt's family in his car at the time. It happened that Miss Alice Roosevelt, the President's oldest daughter, and Representative "Nic" Longworth, of Cincinnati, were in the car with Mr. Ruprecht. As he admitted he exceeded the speed law Judge Scott assessed him with a \$10 fine, and now the joke is on this popular automobile man.

MOST PICTURESQUE TOUR IN FRANCE

Among the many interesting and picturesque motor car tours in the vicinity of Nice, southern France, the one which has become one of the most popular is that to Sospel, which includes the ascent of the serpentine road up the Col de Braus. Recently enthusiastic French, English and Italian motorists planned to meet in Nice to make this trip, and when the start of the mountain journey was made there were more than two score tourists in nine cars, which included a 90-horsepower Mercedes, a Renault, a Rochet-Schneider, a Panhard, a Bayard and a Decauville. The big German car took the lead at a fast pace, and although the roads were covered with snow and the weather rather cold, the motorists were merry and well pleased with the magnificent scenery.

At Escarene one of the cars met with trouble and the others did not wait for repairs to be made. From this little village, which is 1,090 feet above the sea level, the road begins to wind upward and in some places the grades are 15 per cent, while the average is fully 10 per cent. When the highest point on the Col de Braus was reached, the Mercedes leading, the party was 3,275 feet above the sea. The scene from this point is incomparable, as it is possible to see the bottom of the tortuous road and thus, in this instance, the tail end cars were seen coming up. There are few houses on the mountain, everything looking wild. The descent on the other side is to Sospel.

MOTOR CAR MAKERS AND GOOD ROADS

To the maker of automobiles, the road conditions of our country are found to be so bad that in many rich localities the demand for cars amounts to almost nothing. The National Association of Automobile Manufacturers is now taking up this question as one which very clearly demands its support, and it is attempting in various ways to bring its influence to bear to secure the passage of the Brownlow and Latimer bills, which will be re-introduced at the next session of congress.

During the past 2 years there have been good roads measures before both the senate and the house of representatives at Washington. Promises of support have been secured from a goodly number of senators and representatives, but there remains a large number who have not yet been reached and who can best be reached through their own constituency. It is therefore the aim of the N. A. A. M. to enlist the co-operation of every automobile dealer and automobile driver in every state of the union, that these may take the matter up with the congressmen and senators from their respective districts and point out the desirability of the passage of these two bills.

The newspapers have shown a very friendly feeling, and most of them are supporting these two bills heartily. A bureau for the dissemination of good roads literature has been established at Washington, and it starts the first of April to supply the newspapers and the public with useful data on the subject. Copies of the Brownlow and Latimer bills, as introduced at the last session, will be furnished, as well as government reports on road making, and it is possible that a special pamphlet on the subject will be issued during the summer. A very active campaign is planned with the idea in view of approaching every senator and representative in congress before the next session and obtaining from as many as possible their promise of support when these measures come up.

The particular reasons of the manufacturers for devoting their entire effort to the passage of these bills are that these measures provide for national aid, and in every case require the state to spend an equal amount of money to that which it receives from the government. Very few states, at the present time, are spending a cent out of the state treasuries for good roads, but if a large amount of money is placed at their disposal by the national government for the

The National Association of Automobile Manufacturers Seeks Assistance of all Motorists in Work for Highway Improvement



betterment of their highways, few or no states at all will refuse the offer of this sum from disinclination to put up an equal amount. It will obviate the necessity of initial work in each state legislature, such as is being done at the present time in New York, Massachusetts, New Jersey and Connecticut, and as the Brownlow and Latimer measures provide that the states must maintain the roads themselves, it means continual interest in each state on the subject of highways, if these measures pass. President Roosevelt has often expressed himself favorably on the subject of good roads, and while he has never been the fortunate owner of an automobile and looks at the subject from the standpoint of the general good of the country, it is thought that he will favor the passing

EDITOR'S NOTE—This article was written especially for Motor Age by R. D. Chapin, chairman of the good roads committee of the National Association of Automobile Manufacturers.



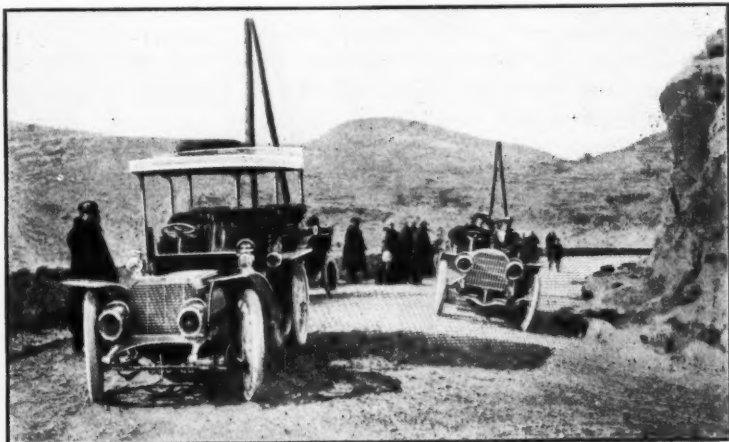
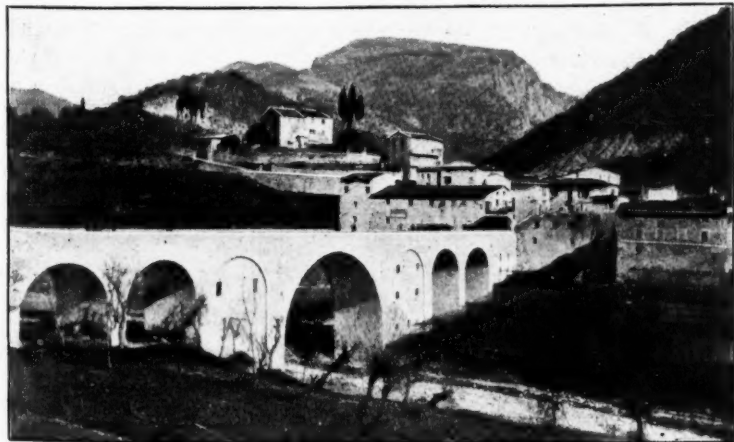
THE MOST BEAUTIFUL AND PICTURESQUE TOURING ROAD IN FRANCE—THE SERPENTINE ASCENT FROM NICE UP THE COL DE BRAUS, MUCH FREQUENTED BY MOTORISTS OF SOUTHERN FRANCE

of the bills when they come up at the next session.

The farmers of the country are doing what they can to aid these measures, and, through their organizations, have passed resolutions requesting their passage, as have almost every good roads organization in the United States. Naturally, the rural population is going to be benefited to the greatest degree, and it is unfortunate that their tremendous influence—for they compose 60 per cent of our population—cannot be so organized as to show the members of congress how much the passage of these measures will add to the prosperity of the farming population. The improvement of rivers and harbors, for which the government spends a large sum yearly, cannot benefit anywhere near the population that an \$8,000,000 appropriation for 3 years would in making better highways. The rural free delivery is the most important way in which the government has attempted to help the rural residents, and the construction of better roads is of far more vital importance, since it is bound to greatly add to the prosperity of the individual farmer. He can get his produce to market quicker and with less wear and tear upon his vehicles and can go to town almost as well in the winter and spring time as in the summer. Certain farming districts of our country are absolutely shut off from communication with the towns in the spring time when the roads are deep in mud, and the returns which will come back from this government appropriation are almost inestimable.

The benefit to the automobile industry of better roads cannot be less than to the residents of rural districts. Every motor car owner, every dealer and every manufacturer—all anxious to see the automobile universally used throughout the country as a means of transportation over the roads—the fact is self-evident that better highways, particularly in the western states, are absolute necessities. The all-year-around roads of Europe furnish an example of progressiveness which we could well afford to emulate.

Let all interested in the progress of the use of automobiles take the matter up verbally or by letter with their senators and representatives and urge their support in the coming session of congress on these two measures. Automobile interests have become powerful and an appeal to the members in congress from every state in the union will secure a large number of the desired votes.





THE GREATEST NEED



ACH PERSON who says that the automobile will never be fully successful until tires are made ten-fold better, so as to resist punctures and to wear much longer, is barking up the wrong tree. That person has not been privileged to drive a car over the billiard-table roads of France, England or Germany, but has enjoyed his trips while negotiating the sandy stretches of Michigan, the mud, dirt and hills of New York, the primeval trails of Illinois or the mountain passes of California and the west.

The secret of the tire problem lies in the improvement of our highways. Give us roads that are worthy of the name of roads, highways that are not quagmires for several months in the spring and fall, as rough as the 'Giants' Causeway for a couple of other months and continuous sand and gravel trenches during the rest of the summer and autumn months, and 50 percent of the puncture troubles will cease, several months will be added to the life of the tires and the pleasure of automobiling will increase in leaps and bounds.

All tire or automobile makers need is a fair chance, a condition that should not be denied any citizen in this country. How long would the locomotive endure were it robbed of its smooth lines of steel that must pierce every foot of the way before it will even dare to go ahead? The automobile, while more delicate in construction and intricate in design, is to-day going everywhere from the mountain peak to the center of the desert—facts which are forgotten simply because of a few tire troubles.

Most of our pneumatic tires are well made and they are not those delicate rubber-and-fabric constructions that they are often held up to be. It is true they are not everlasting coverings for road wheels made to bump over stones, into ruts, through several inches of dust, and over wornout pavements at a 30-mile-an-hour clip; but it is also true that given a fair deal with good road surfaces they will not only endure but will be practically immune from punctures. In proof of this, one concern operating four machines, fitted with pneumatic tires, in a large American city has been running each car upwards of 100 miles a day for 6 days in the week, and has not had a puncture in the last 3 months. The roads traversed are city streets that are macadamized throughout.

Solid tires have been proposed as a remedy for the puncture troubles. It may be said for them that they will answer for city use where the speed will never exceed 20 miles per hour,

but while the driver is free from the worry of tire repairs, his machine is also undergoing on rough roads a continuous shaking that necessitates frequent inspection and adjustment of parts, and every part of the driving mechanism is being more rapidly worn out.

One cause of puncture trouble rests with the car owner. Not 30 per cent of the tires are kept properly inflated when in use. Makers of the best grades of tires have by actual experiment found that from 50 per cent to 75 per cent of the tires are not sufficiently inflated. Under-inflation permits pinching of the inner tube, which sooner or later means a bursting of this tube.

But solid or pneumatic, properly or improperly inflated tires are tires and can be no more overworked without eventual physical failure than can man or beast. The tire problem is intricate when its solution is sought in the tire factory. It is simple if worked out on the highways—or rather those American institutions which disgrace that name.

THE BALANCE OF TRADE



STUDY of the records of the exportation and the importation of automobiles of the different countries in which automobiles are manufactured brings out a condition that on the face of it seems peculiar but which upon reflection simply prophesies the eventual importance of the motor car industry in the world's work. Comparative figures of the exports of automobiles for the last 3 or 4 years from the different countries manufacturing them show that there has been a steady increase.

It is also noticeable that the exportation of these cars is in nearly every instance to other countries which are manufacturing automobiles and themselves exporting them. Thus while the exportations include shipments to countries which do not manufacture automobiles, the bulk of international trade in motor cars is an exchange of products among manufacturing countries.

It is not surprising, then, to find that the increase in exports from year to year is in nearly every exporting country accompanied by an increase in importations corresponding or nearly corresponding to the increase in exportation. There is no noticeable exception in which the importations have decreased and the exportations increased, although there are some instances in which the exportations have increased more rapidly than the importations, France being the most noticeable example. It is also a fact that there are not many cases in which the importations have increased

while the exportations have decreased, England being the only important instance when the figures of 1903 and 1904 are compared.

This condition of automobile imports and exports of automobile manufacturing countries leads to two incontrovertible conclusions—that international trade in automobiles is at present an exchange of compliments which does not present many features warranting a prophecy concerning the disposition of the eventual balance of trade, and that on account of both the exports and imports of manufacturing countries being steadily increased the production of motor cars in all countries manufacturing them is growing proportionately.

In other words, these are the primary school days of automobile manufacture and the international trade has not settled into channels which will mark a future course. There is no way to determine which of the countries will first, by a rapid change of ratios between its imports and exports, mark a permanent direction of the current of international trade.

Even the fact that England shows a noticeable falling off in exports as compared to its imports does not mean a lasting weakness of England in the international market, for it is probable, on account of the great demand for automobiles in England and her colonies, that the English manufacturers are not in a position to produce more vehicles than will supply the home consumption.

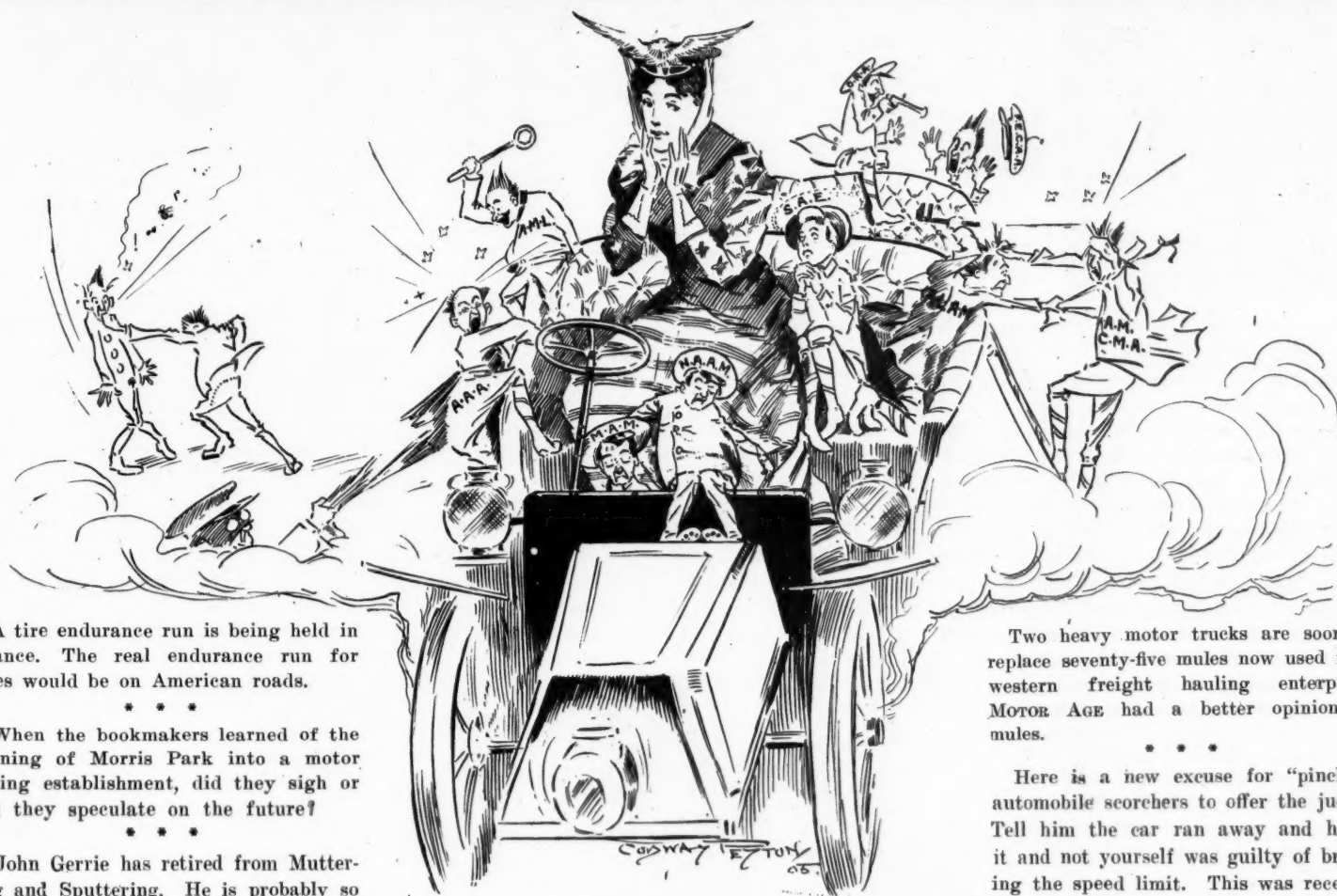
If there is any one country which is, from present indications, likely to soon cease importation nearly or quite altogether it is the United States, which of all countries has the best natural and industrial facilities for the production of all the vehicles its own trade requires and then have a sufficient amount left over to cut a wide swath through the international field.

But an estimate of the situation cannot be accurately or even with approximate accuracy made until the commercial branch of the automobile industry of each country reaches the importance which it will eventually obtain relative to the other branches of this industry. Thus the rapid growth of the commercial vehicle trade in England may next year or the year after cause as sudden and as great a revolution in exporting and importing ratios as that for which the pleasure vehicle was responsible in 1903 and 1904.

England is loaded up with continental-made pleasure cars, but the continent is not making commercial vehicles to export because it is not making enough for its own use. The commercial vehicle business is advancing by leaps and bounds in Great Britain, however, and is so far ahead of the same branch of the industry on the continent that it is possible that its supply will exceed the domestic demand before the continental countries are in a position to compete with England in this branch. Then whatever differences there might be in favor of the continent in the exchange of pleasure cars might be more than offset in dollars and cents in the exchange of industrial vehicles.

This is but one, in fact, of the many peculiar situations which mark the youthful industry of motor making, and when, by maturity, the character of the industry of each nation shall have been determined, it is possible that the whole aspect of the international market will have been changed.

Jump Sparks



AN EMBARRASSMENT OF SUITORS

A tire endurance run is being held in France. The real endurance run for tires would be on American roads.

When the bookmakers learned of the turning of Morris Park into a motor racing establishment, did they sigh or did they speculate on the future?

John Gerrie has retired from Muttering and Sputtering. He is probably so busy writing letters to himself in the New York Herald that he cannot devote any of his time to the manufacture of Jim Holland's dope sheet.

The Leon Bollee car came into existence 16 years before the Panhard. The Panhard, however, won all of the early automobile road races. You can draw your own conclusions concerning the advertising value of automobile races.

Recently in Toledo, automobilists and horsemen met to compare the expense attending the use of the two forms of conveyances, the new and the old. The advocates of the old system had a shade the better of it, but they forgot to consider that one automobile will do three or four times the work of which one horse-drawn outfit is capable.

A bill has been introduced into the New Jersey state legislature providing that certain toll road companies may charge automobilists a cent a mile for the use of their highways, the old law in the case having been made before automobiles came into use and thereby only specifying horse-drawn conveyances. This is fair enough, but a bill abolishing toll roads altogether would be fairer.

A Philadelphia dealer last week lost a \$500 wager that he could drive his car 1,000 miles without stopping the motor, but he made such a creditable 1,000 mile run that the Automobile Club of Philadelphia, which is out with its axe for scorchers, suspended him from membership for breaking the speed limit. All he got out of the deal was a line of advertising the value of which is problematical.

Two heavy motor trucks are soon to replace seventy-five mules now used in a western freight hauling enterprise. MOTOR AGE had a better opinion of mules.

Here is a new excuse for "pinched" automobile scorchers to offer the judge: Tell him the car ran away and hence it and not yourself was guilty of breaking the speed limit. This was recently effective in a Louisiana town.

Novelty seeming to characterize the promotion of automobile contests this season, why not pull off a big team road race between licensed and unlicensed automobiles?

THE WEEK

Automobile Club of America will promote a free-for-all automobile show in New York, irrespective of all other organizations.

Morris Park, an historic horse race course of the east, is given over exclusively to motor car racing. Cape Colony, South Africa, to have service of specially constructed automobile mail wagons.

National Association of Engine and Motor Boat Manufacturers elects officers for year.

Toledo automobilists and horsemen discuss relative cost of motor car and horse.

Thirty-four cars enter for international tourist trophy race in England.

Long Island Automobile Club to have economic automobile test in June.

Lakewood Motor Club announces program for 5-day tournament.

Philadelphia motorist loses \$500 on 1,000-mile non-stop test.

Thomas cars compete in indoor race meet in Buffalo.

Millwaukee motorists want floral parade in June.

New automobile bill surprises Minnesota motorists.

French motorists promote reliability trials for fall.

Wheel endurance run progresses in France.

Only twenty-seven of the several hundred automobilists of Milwaukee who were approached concerning the advisability of holding an automobile parade responded in favor of the project. But inasmuch as only fifty-four responded at all, the vote of the man who sent out the return postal cards gives the necessary majority.

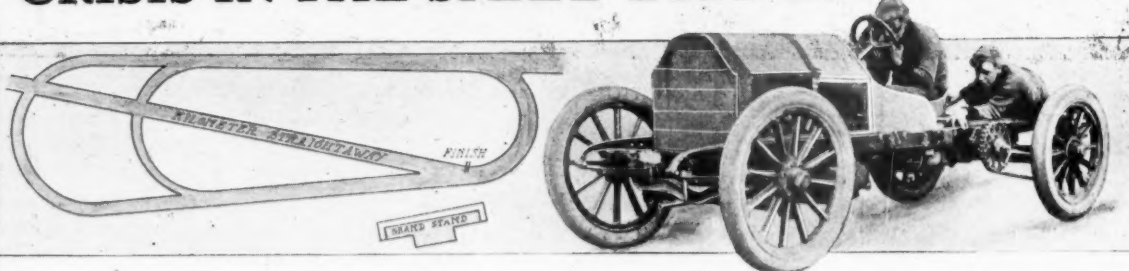
It is now certain that the Automobile Club of America will promote and manage without assistance a big free-for-all automobile show in New York next winter. You can draw a lot of conclusions from the threatened New York show situation, one of which is that the A. C. A. is not as closely related by blood to the A. L. A. M. as is the N. A. A. M.

A United States consul in Great Britain argues that the general introduction of the commercial automobile does not mean the banishment of the horse, but simply his removal to other fields of usefulness than that of hauling goods. The consul in question must either be an ardent devotee of horse racing or he has some horseflesh-roast beef proposition up his sleeve.

At the projected Lakewood Tournament the rules of the Laurel handicap for touring cars, specify that if the required quota of passengers are men, each must weigh at least 140 pounds, and if women, each must weigh 120 pounds. It is a cinch that this race will consist of a big line of touring cars carrying one driver and three girls. How would you like to be the driver?



CRISIS IN THE SPEED DRAMA



Exit the Horse— Enter the Motor Car

New York, N. Y., March 26—Morris Park, an historic course in the annals of the running horse and one of the greatest and most elaborately equipped tracks in the world, is to be given over exclusively to automobile speeding. It will be modified for both circular and straightaway motor car racing. Dave Hennen Morris, president of the Automobile Club of America and a member of the racing family owning the course, is at the head of the enterprise. Alfred Reeves, one of the most experienced and successful promoters of automobile track racing in the United States, will have the management of the meets. They will be promoted fortnightly during the coming season by the Morris Park Motor Club, the title of the new corporation, whose officers are: Dave Hennen Morris, president; J. Horace Harding, vice-president; J. S. Dunting, treasurer, and Alfred Reeves, secretary.

Although not mentioned in the official announcement, it is known to be the intention of Mr. Morris to form a racing club, which shall be a rendezvous for owners of fast cars and a country club for automobilists. The entire scheme is a practical one. A fine clubhouse and an unequalled track are already at hand.

When the Morris closed the gates of Morris Park to horse racing in consideration of \$25,000 annual payment by the Belmont Park Club, whose running course near Jamaica will be opened this spring, President Morris saw to it that the contract gave him permission to use the track for automobile racing. As early as last summer the *MOTOR AGE* correspondent had laid before the Morris the possibilities of Morris Park as an automobile race course and suburban club for motorists, and discussed the project with them. The scheme was discussed at that time with much interest and considerable enthusiasm.

Morris Park course has two tracks. One—the

historic Withers mile—starts in a chute on the backstretch and cuts within the main track. The other—the equally famous Eclipse course—has its start in the middle of the backstretch. With the backstretch chute added there is a run into the start of the Eclipse mile of a quarter of a mile, permitting a flying-start mile. In both courses but one turn has to be negotiated. The main track is $1\frac{3}{4}$ miles in circuit. In addition to the Withers and the Eclipse courses there is a $\frac{5}{8}$ -mile straightaway stretch running diagonally across the oval, which will admit of kilometer sprint races. Contests at a mile and at a kilometer are to be made a feature of future Morris Park racing.

Being devoted exclusively to automobile racing without consideration of use for trotting or running horses, the courses will be remodeled. In the first place they will be oiled to do away with the dust danger. They will be constantly oiled until a surface as hard and smooth as that of Ormond beach or the Cuban military road has been secured. The curves will be banked. As to the banking, track engineers will be consulted and experiments will be made. The ultimate result is expected to be speed possibilities as great as afforded by any straightaway course in the world. It must not be forgotten, either, that mile races and record trials will be run with but a single curve to be negotiated.

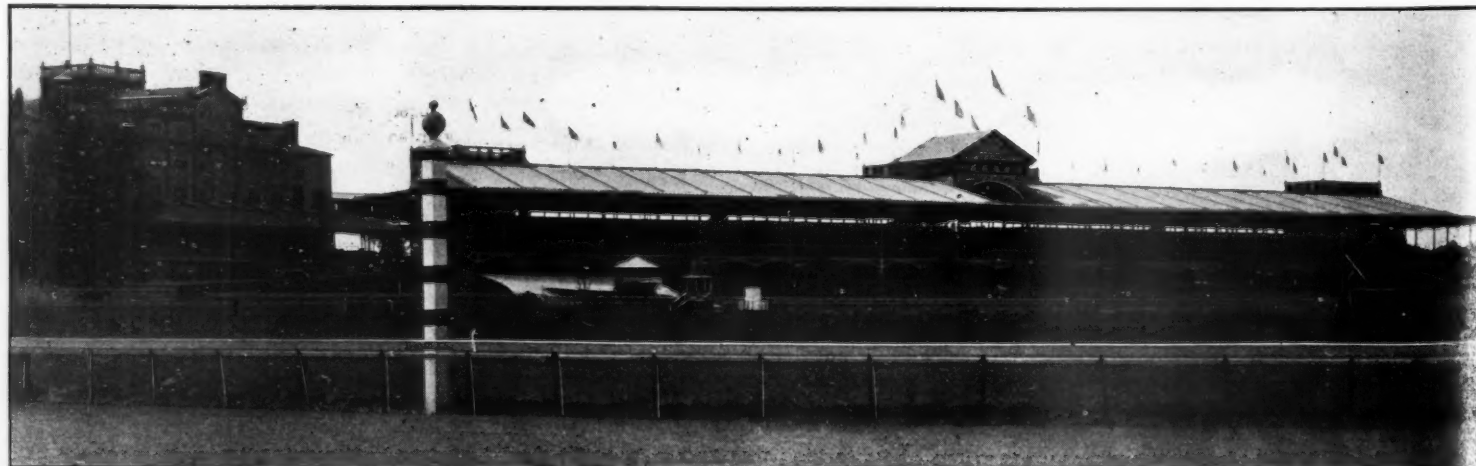
With top speed at all times possible without danger it is believed that owners of big flyers, who have hitherto for the most part given over their cars to racing chauffeurs will be their own pilots just as they are in the Ormond, Havana and the other great straightaway races. The outcome of it all will likely be many more enthusiasts entering the racing game, more makers building racing cars as an advertisement, and foreign makers sending to

this country their victorious cars and most famous drivers. Already such men as William K. Vanderbilt, Jr., Alfred G. Vanderbilt, E. R. Thomas, Major C. J. S. Miller, W. Gould Brokaw, O. F. Thomas, James L. Breesee, Isaac N. Emerson, Henry L. Bowden, William Wallace, Louis S. Ross, S. B. Stevens, Colonel E. H. R. Green, Dr. H. E. Thomas and B. M. Shanley, Jr., have automobile racing stables.

Morris Park is easily accessible to the city by railroad, elevated railway, trolley and highway. It can be reached by automobile from Columbus circle or the Plaza in half an hour. The course, by the way, is 150 feet wide on the backstretch, 105 feet on the homestretch and 194 feet at the finish before the start.

"Interest in automobile racing is growing keener every day," said Mr. Morris, "and the sport is comparatively new. Its continuance will bring us safer and better machines; for nothing proves the weak points in construction so quickly as driving cars at high speed. For that reason racing will teach many things to the builder and eventually bring safer cars for the general public. Most of the successful builders of Europe and America have been involved in racing, and it has almost reached the point where every maker is required to turn out a fast racing car before his product reaches the high plane of success.

"There are a great many makers building fast cars for prominent motorists which will be seen on the tracks this year, driven by their owners or their racing pilots, who are really the jockies of motoring," continued Mr. Morris. "There are so few opportunities to race on the roadways properly policed and under sanction of the authorities, that racing on tracks like the one at Morris Park is being fostered. It tests the driving of the operator as well as the car, while the speed of miles well under the minute supplies excitement for the spectators. Only amateur and professional operators of skill follow the sport. Its dangers will be minimized at Morris Park by banking the corners and oiling the surface of the track so as to have a dustless course. This will



THE GRAND STAND AND CLUB HOUSE AS SEEN FROM THE BACK STRETCH

make it safer for the operators and more comfortable for the spectators."

Racing will begin at Morris Park on May 20. The local track season will open at Brighton Beach on May 6, the week forming the end of the Lakewood tournament. May 30 has been bespoken by Empire City and Fourth of July by Morris Park. There will be few Saturdays and no holidays without racing at one of the three metropolitan tracks. There is a bare possibility at this writing that Mr. Reeves may also manage the Empire City track; but this is not probable.

MOTOR CAR VERSUS TRAIN

New York, N. Y., March 27—Organizer of the first endurance run and pioneer in more than one variety of motor car contests in this country, the Long Island Automobile club now proposes to be the first to promote an economy test. To be sure it will be confined to members, but the membership of the club is now so large that its ownership of cars covers practically all the leading American makes.

The contest will take place on June 10 and 11 and be run from Brooklyn to Southampton, a distance of 90 miles; and return. The test is intended to demonstrate the commercial and economical possibilities of automobiles. The gist of the whole test will be a comparison of cost with the round trip railroad fare of \$4.53 between the two points. That amount will accordingly be charged against each passenger carried. Each car must carry its full quota of passengers. Owners must drive and there will be no official observers, each owner vouching on honor for his own record made.

The charges will be as follows: Hotel and general expenses not to be included; gasoline, 25 cents per gallon; lubricating oil, 60 cents per gallon; time, engine or general repairs, 60 cents per hour; time, tire repairs, 50 cents per hour and same basis of charge for owner or passengers who assist, or repairmen en route; punctures, inner tubes, 75 cents each; punctures, shoes, no charge; blow outs, inner tubes, 75 cents each; blow outs, shoes, no charge; time to replace inner tubes or inflate, 50 cents per hour; new parts, plugs, etc., catalogue price to replace; chain repairs, to be made en route, 50 cents per hour, and catalogue price for new links, etc.

Further particulars may be obtained from Charles Jerome Edwards, secretary, 204 Montague street, Brooklyn.

The club has already in progress contests among the members for trophies for the biggest mileage record, the most states visited en tour and the best attendance at club runs. Each contestant is furnished with cards on which must be entered the car used, engine power, passengers carried, speeds made, gasoline and oil consumed, supplies purchased, repairs made, and general car performance. A two-story addition to the club house under way will double the storage capacity of the garage department, raising it to 100 cars capacity.

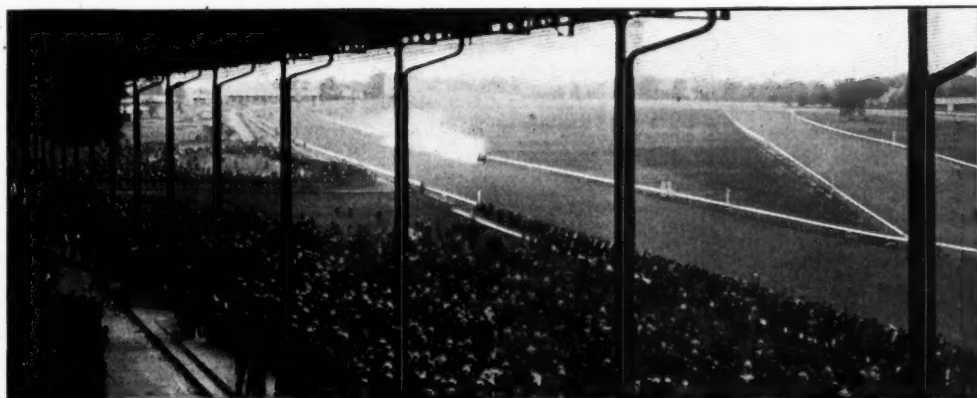
RACES FOR ALL CARS

Program of 5-Day Lakewood Road Tournament Provides Great Variety—Racing Gossip

New York, N. Y., March 27—The Lakewood Motor Club, through Alfred Reeves, who will be the manager of the races, is out with its announcement of its 5-day tournament, to begin on Tuesday, April 25, and be run over the 5-mile stretch of gravel road between Lakewood and Toms River, N. J. The club has been incorporated with the following officers: John E. Pye, president; P. S. P. Randolph, vice-president; Frank Mery, secretary, and Sylvester Byrnes, treasurer.

Eighteen events besides the gymkana contests and match races are scheduled. The program is as follows:

- 1—One kilometer, road record trials; open. Class A, 1,432 to 2,204 pounds; Class B, 851 to 1,432 pounds; Class C, 551 to 851 pounds.
- 2—One mile, road record trials, open. Class A, 1,432 to 2,204 pounds; Class B, 851 to 1,432 pounds; Class C, 551 to 851 pounds.
- 3—One mile, American road championship. Class A, 1,432 to 2,204 pounds.
- 4—One mile, American road championship. Class B, 851 to 1,432 pounds.
- 5—One mile, American road championship.



FROM THE GRAND STAND—SHOWING BOTH HOME STRETCH AND STRAIGHTAWAY

Class C, machines weighing 551 to 851 pounds.
6—One mile, American road championship, standing start; for gasoline cars. Class A, 1,432 to 2,204 pounds.

7—One mile, American Road championship, standing start; for gasoline cars. Classes B and C, 551 to 1,432 pounds.

8—Two miles, open to American gasoline stock cars, standing start; regular equipment, as per maker's catalogue specifications; except that lamps, baskets, tops, mud guards and mufflers need not be carried.

9—Two miles, open to stock gasoline runabouts, made to carry two passengers only and costing \$1,000 or less; regular equipment.

10—Three miles, Lakewood handicap; open to all cars.

11—Five miles, American road championship. Class A, 1,432 to 2,204 pounds.

12—Five miles, American road championship; open. Class B, 851 to 1,432 pounds.

13—Five miles, American road championship; open. Class C, 551 to 851 pounds.

14—Five miles, Laurel handicap; open to all stock touring cars, driven by owners not actively connected with the automobile trade. Each car must carry three passengers in addition to the driver; if passengers are men they must weigh not less than 140 pounds; if women, they must each weigh not less than 120 pounds; regular equipment, except that lamps, baskets, tops, mud guards and mufflers need not be carried.

15—Five miles, Doyer handicap; open to all American stock cars; cars may be stripped.

16—Five miles, Pines handicap; open to all stock cars, American and foreign; cars may be stripped for this event.

17—Five miles, amateur road championship of America; open to all cars driven by amateur owners not actively connected with the automobile trade.

18—Ten miles, American road championship; open to all. This race will be run with a 3-minute control at the 5-mile turning point.

19—Gymkana contests.

Entry blanks may be obtained from Alfred Reeves, manager, 150 Nassau street, New York. The entry fee will be \$10 for the first event entered and \$5 for each additional one.

Hollander & Tangeman, the New York importers of Fiat cars, have received from Marquis A. Terrero Ventimiglia, president of the Automobile Club of Turin, a communication authorizing the entry of five Fiat racers for the Vanderbilt cup race of 1905 and if the rules of last year remain allowing ten cars from each country the president reserves the right to enter five other Italian machines. The entrance fee for the cars entered has been remitted.

By virtue of the authority given them Hollander & Tangeman have already decided upon three of the five entries. They are William Wallace, of Boston, who was an Eagle Rock hill-climb winner, and made a good showing in his Fiat car at Ormond; Lancia, the racing driver of the Italian company, and Cedrino, Hollander & Tangeman's chauffeur, who made his American debut last fall at the Empire track. This leaves two vacancies on the team, for which nominations have not yet been made.

E. R. Thomas denies that he has formed a racing partnership with O. F. Thomas and that A. W. Fletcher is to drive his cars on the track during the coming season. Fletcher will drive O. F. Thomas' cars, but all machines belonging

to E. R. Thomas will be looked after by his own mechanics and driven by himself. He does not propose contesting in track events but will compete in the principal road tests. He hopes to have his car, which was wrecked in Cuba, in commission for the Lakewood meet, where he will pilot it himself.

E. S. Partridge, vice-president of the Standard Automobile Co., is authority for the statement that a 120-horsepower Decauville racer is being built at the factory in France for the Vanderbilt cup race and the Florida tournament.

Major C. J. S. Miller's 30-horsepower Renault has been matched to race Carl Page's 40-horsepower Decauville, which has been steadily in commission for 3 years, at the Lakewood tournament or the Brighton Beach opening. Joe Tracy will pilot the Renault and Guy Vaughn the Decauville. These cars have been rivals for some time and their Lakewood appearance is anxiously looked for, as a deciding contest.

W. J. Morgan, who has just returned from Florida, says that the southern racing circuit will be extended next year, several other places being added. At Jacksonville has been formed the Jacksonville Automobile & Motor Boat Club, being a successor to the old Florida Automobile Association.

FRENCH COMMERCIAL TEST

Motherland of Motoring Awakened to Fact that Her Children Are Ahead of Her in Production of Vehicles of Business, To Arouse Home Interest by Extensive Competition

Paris, France, March 18—For the first time in the history of the automobile industry in France a really important reliability trial for commercial cars is being promoted. It will be held in August under the auspices of the Automobile Club of France. The several competitions for such cars which have been previously held never met great favor among manufacturers, who were busy building touring and racing cars, but there were a few—among whom Marquis de Dion was the most prominent—who advocated that the business vehicle should be considered more than a side issue, and as a more important factor on the trade than the pleasure vehicle. But the success of French cars in big road races, followed by the increasing demand for French cars in many European countries and in America, did not help much in advancing the commercial car, and it was not until recently that manufacturers began to give the matter careful thought and to build delivery cars and trucks.

The demand in France for commercial cars has developed slowly, for, although the touring cars have long ago demonstrated what automobiles are able to do, the majority of large concerns that could use motor cars in place of horses and trucks were hard to be convinced of the saving of money and time, and of the reliability of the motor truck and delivery wagon. The automobile papers, however, devoted more space to the subject of business cars and told of the extraordinary progress being made in this branch of the industry in England. Then the annual London shows of 1903 probably had more effect upon the French manufacturers than anything else towards awakening them to the opportunities offered, and it was noticeable that during last year quite a number of the most prominent manufacturers of pleasure cars started to build commercial and industrial cars.

At the Paris show last December the largest number of such vehicles ever at a French show was displayed, and the exhibit was really one of the features of the show, and according to trustworthy reports the manufacturers did good business.

After the London show at Olympia in February, the Frenchmen who had visited it came back much amazed at the importance of the utility car section of that show, which, according to them, was a revelation for the whole world. Men like Marquis de Dion sounded a warning and the trade papers again started a campaign to induce the manufacturers to work earnestly in a field which may be considered as practically new in France.

The Automobile Club of France had for some time considered the project of promoting a commercial and industrial car trial, and when a few years ago it announced the projected test general interest was aroused and the approval of both automobile and political papers secured. The exact dates have not yet been decided, but the month of August has been selected in which to hold the test.

There are to be two classes of cars. In the first there will be only omnibuses, Renard trains and other styles of vehicles for passen-

ger transportation. The second class will consist of commercial cars. In both classes there will be subdivisions, which will be made according to the passenger carrying capacity in the first class, and to load carrying capacity in the second class.

The passenger cars and the commercial cars carrying less than 1,100 pounds will have to cover from 95 to 125 miles daily for 7 or 8 days, while the business vehicles carrying loads of more than 1,100 pounds will run about 65 miles daily during the same length of time. The points which will be especially considered in the trials will be the regularity of traveling on level and hilly roads, the working qualities of the vehicles and the fuel consumption. In order to determine and compare accurately the expenses of omnibuses the minimum weight per passenger in a closed vehicle will be 230 pounds, which includes 66 pounds for luggage, while the minimum weight of the passenger and luggage in an open vehicle will be 286 pounds.

The entry fee for each passenger vehicle will be \$150; the fee for commercial cars carrying a load of 440 to 1,100 pounds will be \$60; for those carrying 1,101 to 2,200 pounds, \$100, and for vehicles carrying more than 2,201 pounds, \$150. There will be a fee of \$40 for motor cycles with light delivery bodies. In cities along the roads the cars will be placed on exhibition and after the trials are over a final show will be held in Paris. The test is open to both French and foreign cars.

The representatives of several concerns which manufacture small cars met this week to perfect the final plans for the small car trials which will take place some time between July 15 and August 15.

It was decided that the event will be international and that any manufacturer may enter three cars. The chassis must not weigh less than 770 pounds or more than 1,100 pounds, while the minimum weight allowed for the body is 110 pounds. The maximum cylinder capacity allowed is 1 liter, or 2.113 pints, and the average weight of each of the two passengers, who must be seated in the car, will be 154 pounds. Each car must have all the usual touring appurtenances, such as mudguards, steps, lamps or searchlights, cushions, etc.

The trials will be divided into an endurance run and regularity test, and a road race without a speed limit. The first section of the trials will last 6 days, during which the competitors will have to cover daily about 125 miles in not more than 12 hours. Only those cars which will have completed every day's run within the time limit will be qualified to take part in the second part of the trials, the road race, which will be run on a special circuit on the seventh day. The distance of this race will be from 155 to 185 miles, and must be covered without stops.

Every car will be allowed to carry parts and accessories, but it will not be allowable to have recourse to outside assistance. Changing of drivers will be permitted. The winner will receive the cup offered by l'Auto and

50 per cent of the entry fees after the deduction of the expenses. The entry fee per car is \$20.

Thus far five manufacturers have altogether entered twelve cars, which are the Cottureau, Gregoire, Henry Bauchet, Rebours and Bolide. It is expected that three Oldsmobiles will be entered by the Paris agents, while the British representatives of the Cadillac are reported to have entered two cars.

Only four cars started from Paris March 10 in what is termed the wheel endurance run, the distance of which is nearly 2,500 miles. A 20-horsepower de Dietrich, weighing with its passengers and load 4,334 pounds; a 12-horsepower Corre, weighing 3,432 pounds; a 16-horsepower Dadia, weighing 3,960 pounds, and a 16-24-horsepower Rochet-Schneider, weighing 3,168 pounds, are the vehicles now en route to Genoa, Italy, and thence back to Paris. Three of the cars had Samson leather tire treads and the fourth had a Vulcan tread. Each car carried a certain number of extra covers and inner tubes, which were stamped for identification, as no others may be used during the journey.

THE A. A. A. SECRETARYSHIP

New York, N. Y., March 27—Secretary Gillette has issued a bulletin making official announcement of the appointment of A. G. Batchelder as secretary of the American Automobile Association, its racing board and all of its standing committees. The present secretary has handed in his resignation to take effect May 1. In making the announcement the official bulletin says:

"Mr. Batchelder's past experience gives him particularly strong qualifications for this office. There have been several changes in the important officers of the association since the annual election in January, but on the principle that a new broom sweeps clean every change has been made for greater activity in the carrying out of the work and policy of the association. Today the association is stronger than it ever has been and better equipped to undertake the numerous problems that will confront it during the active season of touring and racing."

Mr. Batchelder will retire from the editorship of Motor April 1, and will then place himself in touch with Secretary Gillette and Chairman Morrell, of the racing board, to familiarize himself with the general situation and details of the office.

HE LOST ALL AROUND

Philadelphia, Pa., March 27—The Automobile Club of Philadelphia, having only last week announced its intention of invoking the law against local agents, managers or "lay" automobilists who break the existing speed laws, and announce the fact in the papers, was put in a peculiar position in short order as a result of the impromptu 1,000-mile non-stop test made by Cadwalader W. Kelsey, local manager of the Maxwell agency, in his 8-horsepower runabout. The test was the outcome of a \$500 wager. Mr. Kelsey asserting that his runabout could do the trick without stopping the engine and without making any elaborate preparation, while Morris Wetherill had a similar amount which said he could not.

Starting at 5 o'clock on Saturday afternoon from the Waldorf-Astoria, Kelsey and his chauffeur, F. S. Walton, alternated at

the wheel until the finish at 7:35 Tuesday evening. The test took place over a measured 8-mile course on Broad street, the crack motoring highway of the city, and a heavy northeast storm prevailed throughout. Kelsey did not win, for the reason that twice during the trial the engine was accidentally stopped—once by Kelsey, who shut off the power by catching his mackintosh in the lever; the other time by an attendant who, while oiling the engine, somehow or other brought it to a standstill. On both occasions it was immediately started again. Mr. Wetherill refused to take advantage of the technicalities, however, and spurned Kelsey's gold.

Wednesday's "North American" came out with a display head story of the test, and quoted Mr. Kelsey as having said that at times he "averaged 25 miles an hour for many hours." This—over a course which included fifty-five trolley and one steam railroad crossings, besides a block or more of Belgian block over the Reading Railway "hump" at Huntingdon street—was "going some."

Kelsey is not alone a "local dealer" but a member of the Automobile Club of Philadelphia, and it was up to that organization to make good its threat. This it did last Friday, when, at a special meeting of the board of governors, Kelsey was reprimanded and suspended from membership for a month.

During the 74 hours 35 minutes which were consumed in covering the 1,000 miles, Kelsey's car used 58 gallons of gasoline and the 3 gallons of lubricating oil.

A MOMENTOUS QUESTION

Milwaukee, Wis., March 27—It will be up to David S. Rose of Tucson, Ariz., to decide whether Milwaukee will have an automobile floral parade in June. That sounds funny but Mr. Rose happens to be mayor of Milwaukee, and it is in his official capacity that the matter has been referred to him. He is expected to come to Milwaukee on a visit from his mine in Arizona in a few days and he will find a communication from Secretary James T. Drought of the Milwaukee Automobile club awaiting him.

Mr. Drought submitted the question of holding a parade to a sort of referendum vote by the owners of machines in this city. He sent return postal cards to every car owner in the city and out of the several hundred addressed, fifty-four were ambitious enough to "fill out the attached card and drop it in the mail box." Curiously enough, those who replied were evenly divided on the question, twenty-seven being for and twenty-seven against the proposition.

A. L. A. M. SHOW COMMITTEE

New York, N. Y., March 27—Announcement is made by the A. L. A. M. of the appointment of the following committee on the show: Charles Clifton, of George N. Pierce Co., chairman; Col. George Pope, of Pope Mfg. Co., and Marcus I. Brock, of the Autocar Co.

Giles H. Stillwell, of the H. H. Franklin Mfg. Co.; E. H. Cutler of the Knox Automobile Co., and Marcus I. Brock, of the Autocar Co., have been named as a committee on detailed patents controlled by the association. The committee is to arrange and formulate some plan to determine what patents are being infringed upon and to take action thereon for the protection of the members.

PRACTICAL CARS ONLY

Nothing but Machines of Comfortable Design and Full Equipment Allowed in England's Race

London, England, March 18—Thirty-four cars representing the products of twenty-two manufacturers, among which there are three from the United States, have entered for the International Tourist Trophy race, which is to be run in September, under the auspices of the Automobile Club of Great Britain and Ireland.

The race will be different from previous races because only touring cars can be entered, and because the fuel supply will be limited to 1 gallon for every 25 miles. The length of the race, including controls, will be from 150 to 250 miles. Members of the Automobile Club of Great Britain and Ireland, or of foreign or English clubs affiliated with it, may enter cars. It will be required that the chassis of the cars shall not weigh less than 1,300 pounds or more than 1,600 pounds, and in this weight the tires, bonnet, front mudguards, steps, lamp brackets, dash board, empty tanks, ignition and accumulator apparatus will be included. The chassis must carry a load of at least 950 pounds, including the body, rear mudguards, floor, lamps, driver and one passenger and loose ballast, the last three items to weigh not less than 600 pounds.

Only cars with four wheels may be entered, and it is stipulated that the wheel base must not be less than 7 feet 6 inches, while the tread must be at least 4 feet. The body must be of the ordinary touring type and upholstered with comfortable seats for the driver and three passengers. The seats must face forward, be at least 40 inches wide between cushions and 34 inches from the ground. The frame platform behind the dash board must be at least 6 feet 6 inches long and 30 inches wide.

Extra parts, tires and accessories may be carried in the car. No one except the driver and the one passenger to be in the car during the race will be allowed to do repairing; if outside assistance, either in the shape of parts or men, is accepted, the car will be disqualified. Drawings to scale of the body of the cars must be sent to the Automobile Club of Great Britain and Ireland, which reserves the privilege to refuse the entry of cars whose body it considers does not provide sufficient comfort or protection for touring.

A special requirement is made concerning the fuel tanks. Each car must be provided with tanks holding at least 14½ gallons and must be provided with one or several cocks or unions in such positions that when opened all fuel in the tanks, carbureter, pipes or elsewhere will be drained off through these devices in not more than 5 minutes.

The tourist trophy will be competed for every year between May 1 and October 1, in Great Britain, and will always be a race for cars made in any country provided they comply with the regulations.

RACING BOARD REFORMS

New York, N. Y., March 27—Robert Lee Morrell, the new A. A. A. racing board chairman, proposes several changes in the conducting of race meets. According to him every race meet should be attended by some members of the A. A. A. racing board; a no utopian wish, the fourteen members of this board living in different parts of the country.

He also urges that when a protest regarding a racing decision made by a member of the racing board is lodged with the racing board, the member who gave the decision shall be absent when the board is considering the appeal; furthermore, all appeals should be in handwriting and accompanied by a fee, the latter to discourage frivolous protests. It is the chairman's intention not to officiate at any meet, but members of the board are privileged to officiate if they desire.

Mr. Morrell has several "ideas" in store on the recording of all meets. If his schemes are matured into a code of regulations, automobile clubs and promoters of race meets must mail to the A. A. A. racing board a complete, explicit statement of each race, who won it, the recorded time and other facts, such to be signed by the judges, timers and referee. The "ideas" include the use of an official scorer, who shall record the time of each timer for each race.

In conducting business at the board meeting the custom of the chairman deciding matters and the board approving them is promised a high shelf. The legal instincts of the chairman revolt at such autoeracy and he proposes that a majority of the board present at any meeting constitute a quorum, their acts to be binding on all.

Changes are not expected to be made in the weight limits for different classes of cars and the board will probably pay no attention to the amateur-professional distinction.

BOOSTING TECHNICAL SOCIETY

New York, N. Y., March 27—E. T. Birdsall, secretary of the Society of Automobile Engineers, has issued a circular announcement to engineers eligible for membership showing the benefits of the organization. Primarily, it is for an interchange of ideas among qualified designers and constructors of motor vehicles. Meetings of the society are to be held quarterly or oftener in New York or other cities, when papers will be read by members, in turn followed by discussions thereon. Various constructive methods will be studied with a view to determining the most advanced type of automobile. A. L. Riker, of Bridgeport, Conn., is president; Henry Ford, of Detroit, and John Wilkinson, of Syracuse, vice-presidents, and E. T. Birdsall, of New York, secretary. About twenty-five applications for membership have been received from prominent engineers.

ON TEN-LAP FLAT TRACK

Buffalo, N. Y., March 27—Not even Barney Oldfield's daring driving at the Kenilworth track last fall produced so many thrills to the minute as the 2-mile race between two Thomas Flyers on a flat-board ten-lap track at the Sixty-fifth Regiment arsenal last night. It was the first indoor automobile race ever run in this city.

Cal Paxon, city sales manager of the E. R. Thomas Co., driving a 24-horsepower, three-cylinder, 1904 Flyer, was pitted against Dave Schultz in a 40-horsepower, four-cylinder 1905 car. Taking the sharp turns was dangerous work. Paxon's machine at one stage of the race seemed likely to rip a hole through the brick walls of the arsenal, but was controlled after knocking over a substantial wood post close to the track. Paxon led most of the way, but was overtaken in the last lap by the larger car. The time was 5:20.

AN OPEN SHOW BY A. C. A.

Plans Are Being Made for a Big Exhibition in New York at the Same Time as the A. L. A. M. Affair in Madison Square Garden—It Will Probably Be Held in New Armory

New York, N. Y., March 28—The Automobile Club of America has in mind the holding of a free-for-all show and is making preparations to that end. The present intention is to promote the show itself and be the sole manager and backer of the enterprise. It is practically settled that it will be run at the same time as that of the Association of Licensed Automobile Manufacturers. The impression of the A. C. A. exhibition committee is that the A. L. A. M. show will be held in January the same week as this year. Others share the same impression as to the date.

While the National Association of Automobile Manufacturers, the American Motor Car Manufacturers' Association, the Motor and Accessories Manufacturers and the Importers' Salon are not slated by the club as partners in the enterprise one or more or all of them may actually sanction the show or at least oppose no objection to the participation of their members in it. The members of the Association of Licensed Automobile Manufacturers will be at liberty under the present plans to also exhibit if they so desire. Some of those active in the promotion think that some of the A. L. A. M. members may accept the invitation and be represented both at the Madison Square garden and club functions.

The A. C. A. at present refuses to tell what building it has in view, but hints at a refusal of an available and conveniently located one. It is surmised by some of the wise ones that the armory now in course of construction at Lexington avenue and Twenty-sixth street is it. It has two galleries, which the A. C. A. says its prospective building has.

The Automobile Club of America thinks a show run by itself will solve the entire problem of all makers being given an opportunity to show their product in New York next winter. The club is banking also on its belief that none of the associations mentioned stands ready to undertake the promotion of an opposition or rival show of itself or perhaps even in partnership with others.

It says it has always stood ready to help in advancing trade interests. It believes that its standing and experience will not only be a guarantee to exhibitors of fair treatment and good management, but command as well the confidence and patronage of the public.

In furtherance of its project the committee invited representatives of the associations named to a conference. The meeting was held last Friday evening. There were present Samuel A. Miles, general manager of the National Association of Automobile Manufacturers; Benjamin Briscoe, a member of the executive committee of the American Motor Car Manufacturers' Association; H. W. Chapin, president, and David J. Post, one of the leaders of the Motor and Accessories Manufacturers, and Clinton R. Mabley, president of the Importers' Salon. Dave Hennen Morris, president; Albert R. Shattuck, former president; General George Moore Smith and Alan R. Hawley, of the exhibition committee, and S. M. Butler, secretary, represented the club at the conference. Its result was that the representatives present, frankly stating that the

invitation took them by surprise and that they had no authority to speak for their respective bodies, agreed to report to their parent associations and request them to take action in the matter and inform the club of their decision.

President Morris presided and set forth the objects of the conference and the club's plans in outline. Mr. Morris's rather magnified ideas of the club's influence and importance and as a factor in the success of former shows, its consequent claims to recognition in leadership and management, were not altogether shared by those present, who made it very evident that their associations, should they decide to sanction or co-operate, would expect to have much to say as to the details. The discussion, however, was friendly even if it was a bit frank at times to the promoters of the project.

It did not take long for the tradesmen to convince the clubmen that the show, if held at all, must be held concurrently with the Madison Square garden function, since two trips of the makers and dealers were out of the question.

The clubmen advanced the utopian proposition that a drawing free to all comers be held to determine choice of spaces. Mr. Post let it be understood most emphatically that his associates would stand for no free-for-all raffle or for jobbers or newcomers being placed ahead of them in the allotment of spaces. Mr. Post was backed by all the tradesmen present in this stand. They had no objection to any plan of equal allotment decided upon, provided that all outsiders and newcomers were put to the rear and given their choice only after the members of the associations represented had had theirs. In other words they demanded that membership in the associations, parties to the conference and in a certain sense co-operating in the show, should have preferential recognition.

Mr. Mabley said he had no idea what the conference was for when he came and he had no authority to speak for his associates, but in general he could say that all the importers wanted was a fair chance and sufficient space for the exhibition of their cars.

One of the clubmen asked whether there would be enough cars to go around with two shows. He was promptly assured that there would be. The opinion of the tradesmen was general and emphatic that the lines would be strictly drawn in the two shows between licensed and unlicensed makers and that the clubmen were building on false hopes if they counted on the licensed makers exhibiting at both shows. It was hinted, however, as possible that the parts and accessories makers might desire to have exhibits at both shows.

New York, N. Y., March 29—Special Telegram—The A. C. A. will have an automobile show. It will be run concurrently with the licensed show at Madison Square garden. The club has an option on two armories for the show. This was all the information vouchsafed the MOTOR AGE man at the conclusion of the executive session of the exhibition commit-

tee held late this afternoon, at which President Morris, Secretary Butler and General Smith and W. Pierson Hamilton were present.

"We will tell you all about our plans in about a week," said Chairman Smith. "It will be an automobile show and not a patent show," added Mr. Hamilton. "We promoted the first show and feel confident that we can put through this show with success and satisfaction to all concerned," put in President Morris in conclusion. In response to the MOTOR AGE man's questioning, it was admitted that the suggestions made by the tradesmen at the conference were well received and the inference was that all of them had been accepted.

George H. Day, who was called up on the telephone by your correspondent and told the result of the meeting, and questioned as to the attitude the licensed association members would take toward it, said: "We have had no official notification of the show; we have not discussed any rival shows at any of our meetings, nor have I heard any of the members discuss any show but our own. We are pretty busy with that without thinking of any other one. Since you ask the question, I am not inclined to think that any of our members will exhibit at any show but that in the garden. Yes, I think, it will be possible to give newspapers a good and satisfactory show, even if it be confined solely to the leaders."

Rumor points strongly to the automobile club having in mind for its show the Sixty-ninth Regiment armory now building on Lexington avenue, between Twenty-fifth and Twenty-sixth streets, within a block of Madison Square garden.

Prompt action on the club's proposition is expected. The N. A. A. M. executive committee will have its regular monthly meeting next week. It is reported that the A. C. M. A. executive committee will in all probability meet on Friday in Detroit. Presidents Chapin and Mabley are expected to call meetings of the executive committees of their organizations at once.

Manager Josephs, of the Auto Import Co., received a cable from the Rochet-Schneider people today saying that the Paris bodymakers' strike had been settled.

THE FRENCH PIONEERS

Paris, France, March 18—While a great many French automobilists as well as those of other countries believe that Panhard & Levassor cars were the first automobiles regularly made and marketed in France, as a matter of fact the first Panhard & Levassor cars were not sold until 16 years after the first Leon Bollee, Sr., steam cars were introduced, which was, it is said, in 1873.

Eight or nine years after these first steam driven automobiles were brought out, the first de Dion-Bouton and Jeantaud cars were placed on the market, the former being then steamers, while the latter were the first electric cars made in France. In either 1886 or 1887, Serpollet had his first steam cars ready for sale, and, contrary to the policy of the earlier steam car builders, he stuck to this particular branch of the industry and is today the veteran steam car builder in France.

Panhard & Levassor and Peugeot cars made their debut at the same time in 1889, and the reason of the former's world wide reputation is due chiefly to its success in most of the important races and competitions run during the

earlier period of racing in France. It is claimed, however, that the Panhard and Levassor company was the first concern in France to place an order for automobile bodies with a carriage maker.

During the succeeding years there was no rush of new concerns, although several minor houses were established. Two well known makes, which are still on the market, the Mors and the Clement, were brought out in 1895. The following year a dozen new concerns placed their cars on the market, and among them were the manufacturers of the Rochet-Schneider, Cottareau, Darracq, Delahaye, Georges Richard, Gladiator and Creanche. The first Werner motor cycles were sold in 1897, when also the de Dietrich and Bouchet were introduced. Practically no other concerns started in 1897, but in 1898 more than a score of makers made their debut. Among them were the builders of the Renault, Decauville, Gobron, Krieger, Turgan-Foy, Chenard-Walcker, Electromobile and Boyer. In 1899 only three new cars were placed on the market, the Ader, Hautier and Delaugere.

From that time on new motor cars were marketed each year. Among the more important additions were the Charron, Girardot & Voigt, Richard Brasier, Gallia, Prosper, Lambert, Tony Huber, Hotchkiss, Fouillaron, Aries, Berliet, Turcat-Mery, Gillet-Forest, Radia, Delaunay-Belleville, Westinghouse and Svelte, the latter being made by one of the largest gun and ammunition plants in the world.

It is estimated that there are now about 100 concerns in France making automobiles,



either exclusively or as a side line. The number of concerns making cars to order is probably as great. The concern which is credited with the largest output is the Darracq company, which completes from 2,000 to 2,500 cars a year. A. Clement, manufacturer of the Bayard, Renault, Freres, and de Dion-Bouton & Co., are probably the next largest builders. The Panhard & Levassor company's output is variously estimated, some claiming that it does not put on the market more than 300 cars a year, while others claim that its output is of about 500 vehicles. Among the newer concerns the Charron, Girardot & Voigt company probably turns out the largest number of cars, probably 350 a year.

The outputs of the other well known factories range from 100 to 500 cars, some of them, indeed, not making as many machines as might be presumed, their chief aim being to produce a moderate number of pretentious rigs at good prices.

SPERRY PATENT NO GOOD

New York, N. Y., March 29—Special Telegram—It is said here today that the option secured on the Sperry ignition patent by a member of the A. L. A. M., has been surrendered on the advice of the association's counsel that the patent is unimportant.

The Vanderbilt cup commission which consists of the racing board of the American Automobile Association and W. K. Vanderbilt, Jr., met today and issued the conditions under which the cup race will be run this year and entry blanks, both in accordance with the conditions previously published.

AUSTRIAN SHOW GREAT

Enthusiasm Marks the Big Annual Exhibition at Vienna—The French Cars Predominate

Vienna, Austria, March 17—The fifth annual automobile show held by the Austrian Automobile Club was opened yesterday by Count Kielmannseg, governor of the province. There were hundreds of representatives of all classes of people and every one seemed enthusiastic that show time had again come, for in Austria there is not half a dozen local shows, as in England and Germany, and thus in order to see what is going on in the industry the motorist must attend this annual affair.

This year, as last, the French cars are most prominent, notwithstanding the fact that progress is noticeable among the half-dozen domestic cars. But even among them, the most conspicuous, the Austrian Mercedes, or Daimler as the car is often called here, is only a copy of a parent German vehicle. The Lohner and the Spitz are probably the most important of the cars made entirely in this country and from the designs and ideas of Austrian designers and engineers.

It is evident from the number of commercial cars which are on the floor of the Gartanban Gessellschaft building that the demand is rapidly increasing for this class of vehicles and it is said that several concerns are now being incorporated to build such vehicles exclusively. The motor cycle section is very interesting and most of the small two-wheelers shown have motors of more than 3 horsepower, which seems to indicate that the people prefer the high powered machines. This is also noticeable among the pleasure automobiles, most of which have motors of more than 20 horsepower, and generally of four cylinders. Single and two-cylinder motors seem to be going out of fashion here entirely.

Among the principal cars and motor cycles shown are the following: Austrian Mercedes, Decauville, Adler, Renault, Spitz, Maurer, Darracq, Benz, Peugeot, de Dion-Bouton, Laurin & Klement, Rochet-Schneider, Boek & Hollender, Lohner, Electrique, Richard-Brasier, Fiat, Neckarsulm, Puch, N. A. G., Schick, Scheibertand and F. N.

HORSES AND CARS COMPARED

Toledo, O., March 27—At a meeting of Toledo horsemen and automobilists recently the question of the comparative expense of owning and keeping a horse or automobile was thoroughly discussed. The advocates of both were about equally divided, and, in the course of the discussion each side gave its actual experiences in figures. One of the low-priced electric machines was compared with the owning and maintaining of a little-above-the-average-priced horse outfit. The figures produced are interesting and are as follows: Cost of automobile, \$850; interest at 6 per cent per month, \$4.50; repairs per month, \$2; tires per month, \$3; batteries per month, \$10.50; garage per month, \$20; depreciation per month, \$10.50; total for maintaining the automobile per month, \$50.50.

Cost of a first-class horse, \$200; cost of carriage, \$200; cost of harness, \$25; cost of robes, blankets, whip, etc., \$50; total cost,

\$475; interest at 6 per cent per month, \$2.38; keep in livery per month, \$18; repairs per month, \$3; shoeing per month, \$2; veterinary per month, \$2.25; total per month, \$29.63.

From the above, these Toledo gentlemen decided from their own figures used as a basis for comparison, that to keep a good horse and buggy cost \$20.87 less than a cheap electric machine. They forgot, however, the point of comparative service whereby an electric car able in speed and ability to run continually by the alternating of two sets of storage batteries, would at one and two-thirds times the expense of the horse rig do by speed and hence distance covered from two to three times the work and thereby be cheaper, measured by the dollar's worth of work.

MANY MORE MAKES

Buffalo, N. Y., March 28—Two or three days of spring weather has brought the hum of the motor to Buffalo's streets and everywhere in motoring circles and in garages there is the greatest activity.

Each successive week since January 1 has increased the indications that this is to be a banner automobile year in this city. Prior to the show held during the first week of March, the dealers were pretty busy; directly after the show they were busier, and during the last week they have been more active than, perhaps, during any previous week since the motor car took hold in Buffalo.

With the clearing of the ice and snow from the streets demonstration cars have been in great demand, and there is no indication that



the effort to curtail the demonstration habit is any success at all in Buffalo. Indeed, some dealers assert that the offering to the public of a large number of cars which have not been sold here in previous years will necessitate more work by the demonstrators, because heretofore many buyers knew the good points of a large number of the cars offered to them, whereas now many of the machines on sale have as yet no following at all in Buffalo. The dealers, too, are rather anxious to make practical exhibition of the merits of the newer arrivals.

A pretty careful count of the total number of different makes of cars offered to the buyers of Buffalo and vicinity this year places the number at forty. Of these twenty-five have been on sale here by regular agents heretofore. Only two cars which were offered for sale here last year are not included in the lists of local agents this year. This large increase in the number of makes of cars represented at once gives the reason for the necessity of more work by the demonstrating cars and an indication of the extent to which the dealers expect the trade to grow.

Most of the Buffalo dealers are fully prepared for the rush of business which seems to have set in. Work on the Poppenberg company's repair shop is not quite finished, but the new salesroom is practically ready for use. The completion of work at that establishment will give this city five unusually large garages, the leaders being the Centaur Motor Co., the Poppenberg Co., the George N. Pierce Co., J. A. Cramer, and W. C. Jaynes, besides a number of commodious stores and smaller garages.

LEGAL SENSE AND NONSENSE



MASSACHUSETTS CO-OPERATION

A conference of delegates representing the automobile clubs of Massachusetts is to be held at the headquarters of the Bay State Automobile Association in Boston next Saturday afternoon, when it is hoped that some united action will be taken regarding proposed legislation. The Bay state association has been most prominent in fighting several obnoxious laws, and eventually succeeded in causing no less than three bills to be withdrawn. It has also secured the reduction of the penalty of motor law violation from \$250 to \$100, and also the dropping of the imprisonment section. It has done everything that lay within its power, and now invites the other organizations to co-operate with its officers in further work.

MINNESOTA SURPRISE

Minnesota automobilists, after believing themselves safe as far as new legislation was concerned, have been suddenly brought face to face with a new bill, introduced Friday in the legislature. The bill was prepared by the house committee on roads and bridges, and is supposed to combine the principal features of the present law, with some restrictions which the farmers believe necessary.

The automobile owners are up in arms against the bill, however. The day after it was introduced, several of the most prominent automobilists of St. Paul placed their cars at the service of members of the legislature, and started out to show the law-makers what a deceptive thing speed is.

The worst feature of the new bill is that it cuts down the limit of speed in the country to 15 miles. In the city the speed is left as at present, 8 miles, but the speed of 25 miles on country roads, permitted under the law of 1903, is reduced to such an extent that the new provision is utterly impracticable. The bill further provides that speed at crossings shall be 4 miles, and when passing an animal drawn vehicle, or a person on horseback, 5 miles. The license fee is increased from \$2 to \$5, and provision is made that every machine must be licensed by the secretary of state, instead of by the local boiler inspectors, as at present.

The speed feature is what is causing most concern to the motorists. "It is utterly impossible to establish a speed on highways of 15 miles per hour," said J. S. Spargo to a number of members of the house immediately after the introduction of the bill. "The law would simply furnish a club to hold over the head of every man who caused the slightest damage with his machine."

SCRAP IN PENNSYLVANIA

The ease with which the proposed new Pennsylvania automobile law passed the state senate naturally encouraged its sponsor, the Automobile Club of Philadelphia, to hope that its progress through the house would be marked by equally plain sailing. But it is unfortunate that just now what little division there is in the Republican side of the house, which is overwhelmingly in the majority, is over the evident purpose of the "city fellers" to run things to suit themselves, regardless

of the feelings of the "country" members. Therefore, when those in charge of the bill in the house began to do a little missionary work in its behalf they found themselves constantly running up against snags in the persons of the bucolic legislators, who see in it a "city" bill, and are therefore preparing to bludgeon it on general principles when it shows its head.

The opponents made such a showing, indeed, that the judiciary general committee, to which the measure was referred, has announced that a hearing on the bill would be granted Tuesday this week. The Automobile Club of Philadelphia and the organization in Pittsburgh have sent delegations to Harrisburg for this, while unattached automobilists from all over the state have been invited to attend the hearing.

It is understood that the objections of the "farmers" are based upon Sections 5 and 10, the former of which takes from townships and hamlets all power in the matter of speed regulation and lodges it in the state, the latter doing away with arrests of automobilists without a warrant except in the case of an automobilist who neglects to carry an official tag.

On the other important section of the bill,—that providing for the extension of all the privileges of the new law to properly licensed and registered automobilists of other states—there is absolutely no division, everybody agreeing that it is a good thing, especially if it shall result in the passage of similar legislation in New York, New Jersey and other adjacent states.

EMPIRE STATE BILLS

Judge William H. Hotchkiss of Buffalo, president of the New York State Automobile Association, is authority for the statement that the Empire state motorists are much pleased over the failure of the committee which was considering the Wilsnack bill in the legislature to report that measure. The Wilsnack bill is the Saxe bill in the assembly. It provided that motorists who broke the speed laws might be sent to jail on the first offense. Nothing has been heard in several days of the Saxe bill which seems to be slumbering away to its death in the senate committee. MOTOR AGE predicted its failure some time ago. There is every reason to believe that the effort to put on the books such drastic regulations regarding penalties has failed utterly.

It must be admitted, however, that there was a lot of surprise among motorists of the western part of New York state over the action of the senate committee in reporting out the L'Hommedieu bill providing a tax of \$2 a horsepower a year on automobiles. In committee the bill had been amended to provide that the proceeds of the tax should be used for the good roads fund and that motor trucks should be exempt from the tax, but it had not been supposed that the measure would come from the committee in any form.

It is admitted by the motorists that the amendments make the measure more acceptable but it is pointed out that the mere diverting of the proceeds of the proposed tax to the good roads fund does not coincide with the proposal made in a tentative way at the recent meeting of the directors of the state association in Buffalo. That proposal was

that the money to be raised by a special tax on motor cars should be used for the maintenance of good roads which had been built previously by state aid. A further point of the program of the motorists of New York state, as outlined in MOTOR AGE recently, is that the control of highway repairs should be transferred from the town governments to the state government. Such position was taken by the motorists, as the writer happens to know, only after prominent legislators had intimated that the transfer of control of road maintenance would need to be made to prevent the decay of highways on which thousands of dollars have been spent.

While, however, the action of the committee in making a favorable report on the amended L'Hommedieu bill may look a bit discouraging at first it is believed that the action was the result of a lot of personal work on the part of Senator L'Hommedieu, father of the bill. His measure was attacked so strongly in all parts of the state that it is believed he made an unusually hard fight to get it out of committee. That it will be passed by the two branches of the legislature is not believed.

THE CAR WAS LIABLE

Shreveport, La., has had experiences with runaway horses, runaway negroes and runaway circus elephants, but the first automobile which has ever run amuck in this vicinity created excitement that was a reminder of the ante-bellum days. The steering gear was hardly in good running order and the rest of the outfit was decidedly cranky. It belonged to L. F. Boon and was being driven by Ed Luster, who was headed for a repair shop, where he hoped to have some of the crankiness extracted. Soon something happened, but there was no time to ascertain what it was and there was not enough left of the machine 2 minutes later to make an investigation worth the trouble. Suffice that the machine ran away and in its flight brought up against an old negro woman, who was not of a feathery construction, but still too light to stop the machine, which tossed her to the sidewalk and continued until it hit the curb. Mr. Luster was arrested for reckless driving, but he showed conclusively that he was not driving, as the car was running itself. As there was no statute under which the car could be arrested the case was dropped.

WILL NOT DODGE NUMBERS

Secretary Drought of the Milwaukee Automobile Club has prepared a bill for automobile regulation and has arranged to have it presented in the legislature as a substitute for measures pending. The bill is patterned after the Stondahl bill previously mentioned in MOTOR AGE, but contains additions and modifications.

"We will not try to dodge the numbering provision," said Mr. Drought, who is a lawyer. "Most of the car owners have no objection to such a provision and personally I do not think it can be proven unconstitutional. We will permit its incorporation in the bill we will support."



GOSSIP OF THE CLUBMEN



Ladies May Eat—The Richmond County Automobile Club is to have ladies at its annual banquet on April 8 as guests and not mere spectators.

Early Jersey Parade—The New Jersey Automobile and Motor Club is to hold its second annual parade in May. The first parade, despite a rain storm, had 200 cars in line.

Dayton To Climb—The Dayton Automobile Club, of Dayton, O., has decided to hold a hill climbing competition at an early date. The annual track race meet will probably be given on July 4.

Money for School—At a recent meeting of the Automobile Club of Belgium \$600 was voted as the contribution of the club to the automobile school of Brussels, which is under the patronage of the club.

Kankakee Election—At a recent meeting of the Kankakee Automobile Club, of Kankakee, Ill., the following officers were elected for the current year: President, C. E. Holmes; vice-president, August Radeke; secretary, Charles H. Cobb; treasurer, W. S. Vanderwater.

No Spring Race Meet—The Cleveland Automobile Club, of Cleveland, does not intend to hold a race meet before August or September, as it is claimed that manufacturers are too busy during the spring and summer, and will take more interest in races if they are held later in the season. It is also believed that a fall meet will enable the management to secure the appearance on the local track of nearly every driver of reputation in the country.

In Sunny Italy—The Automobile Club of Milan, Italy, has arranged an endurance run for touring cars for May 16 to 18, and for which \$4,000 in cash prizes, cups and medals will be given. The cars will be divided into three classes according to the price of the chassis. The cars in the first class will have to cover a circuit about 325 miles daily; those in the second class must cover about 200 miles daily, and the small cars of the third class must cover 125 miles daily. The roads chosen are in the most picturesque sections of central Italy. Forty motorists have already entered.

Clubmen as Sleuths—St. Paul is trying a system of self-regulation of automobiles, which is causing considerable comment. Six members of the St. Paul Automobile Club have been commissioned special police officers with full power to arrest offenders who violate the speed limit of the city. The automobile club has issued a special order notifying every automobilist of the city that the steep Sixth street hill is forbidden to the motorists. There is no ordinance by which the drivers can be kept from the hill, but the incline is closely watched by the special automobile police, and several club members who have been caught racing for the hill at a hot pace have been given formal warning that a repetition of the offense will mean arrest and fines. The commissioned police are among the foremost automobile owners of the

city: L. A. Wood, Oliver Crosby, B. A. Ledy, Major George C. Knocke, R. M. Neely and Thomas W. Short.

New Jersey Officials—The officers for 1905 of the Automobile Club of New Jersey are: W. B. Hunter, president; C. E. Reiss, vice-president; G. Franklin Bailey, secretary-treasurer; board of governors, Winthrop E. Scarritt, James P. Dill, W. Quivey, Isaac H. Blanchard, A. J. Lamme and George H. Jacobs.

Jacksonville Organizes—At a meeting of motorists of Jacksonville, Fla., which took place March 16, the Jacksonville Automobile and Motorboat Club was organized. H. A. McEachern was elected president; Charles A. Clark, first vice-president; Frederick E. Gilbert, second vice-president; Herbert Pace, treasurer and secretary.

Buffalo Likes New Home—Saturday, March 25, 1905, will be remembered in future years by members of the Automobile Club of Buffalo as the day on which the club moved into its new quarters in the Teck theater building and raised its membership limit from 500 to 600. In location, in appearance, in every way, the new quarters are even more satisfactory than was expected by the club's officers. The rooms are attractive, the dining room being especially a feature in which the clubmen take pride. Arrangements have been made to serve a club luncheon daily from noon until 2 o'clock, and members already have begun to take advantage of the opportunity to meet at the club at meal time.

Smoke Talk—The St. Paul Automobile Club, of St. Paul, gave a smoker last week at which nearly seventy-five motorists from the city and from Minneapolis were present. Although there was plenty of good music and vaudeville, the principal and most important part of the evening's entertainment was the talk on good roads, by Gustav Scholle, of the state good roads association. William Joyce, of Minneapolis, urged that a macadamized road be constructed between the Twin cities; Walter Mohler spoke on "Things Owners Do Not Know About Automobiles," while Secretary B. A. Ledy's subject was "Things Dealers Do Not Know About Automobiles." The St. Paul Automobile Club has now about 200 members.

Hutton Lectures—Professor F. R. Hutton, of Columbia University, lectured last Thursday evening before the New York Motor Club on "The Evolutions and Problems of the Motor Car." Professor Hutton illustrated his remarks and emphasized his arguments by an interesting series of lantern views. He showed the evolution of the American car by pictures beginning with the veteran Haynes-Apperson creation, and also pictured similarly the development of the French industry. He gave the French credit for the departure from a carriage body to a special automobile body. He deplored the present neglect of the runabout and the commercial vehicle for the production of touring cars for pleasure. The public, he says, not only needs cars for business purposes, but light, moderate priced vehicles for rapid transit. The lecturer pronounced the electric car the ideal vehicle, and urged that invention turn toward the development of a storage battery. He thought the use of pneumatic tires wrong theoretically, and the weak point about automobile construction.

MOTOR TRADE MELANGE



Fire in Steamer Factory—Fire recently damaged the Crompton building, in Worcester, Mass., in which the Crompton Motor Car Co. is located. The concern makes steam cars.

In Receiver's Hands—The Goshen Rubber Co., of Goshen, Ind., is in the hands of a receiver. It is reported that the assets are about \$100,000 and the liabilities about \$60,000.

Loomis Joins Reliance—Dewitt C. Loomis, formerly manager of the Detroit Steel & Spring Works, is now president and general manager of the Reliance Automobile Co., of Detroit.

For Heavy Motor Trucks—The Consolidated Motor Co., of New York, has leased a factory on North Ninth street, Brooklyn. It will be devoted exclusively to the manufacture of motor trucks of 5 tons and over.

Tire Branches Neighbors—A large building is being finished on Jefferson avenue, Detroit, in which the local branches of four tire concerns will have their headquarters. The Auto Equipment Co. will also be located in the new building.

Larger Spring Factory—The Tuthill Spring Co., formerly located at 315 South Clinton street, Chicago, has moved into a new plant at 215 West Polk street. The concern manufactures carriage and automobile springs and has increased its facilities for production.

Upton Hustling—The Upton Motor Co., of Lebanon, Pa., recently added about \$15,000 worth of machinery to its plant and is reported to keep its men busy until 10 o'clock every night five days of the week. Harry T. Adkins is president of the concern and Colcord Upton is general manager.

Northern Additions—The Northern Mfg. Co., of Detroit, manufacturer of Northern cars, will soon be able to take possession of a new two-story brick building 60 by 100 feet, which will be used for office purposes, besides containing the testing room, the upholstering department and the paint shop. This is the third addition the concern has made since it started in business a few years ago.

Didn't Burn—Eastern daily papers last week reported that the plant of the International Automobile & Vehicle Tire Co., of Milltown, N. Y., was destroyed by fire March 21, and that from 600 to 1,000 men were laid idle. The report was erroneous, as the factory was not the scene of the fire, which occurred in a small detached house used as a warehouse and hence did not affect the plant.

Down With Mules—The Commercial Vehicle Co., of Detroit, has received an order from the Pennsylvania Wyoming Copper Co., of Encampment, Wyo., for two 10-ton trucks to be used for hauling copper over a distance of 45 miles. It is estimated that these two trucks will do the work of seventy-five mules. Two similar trucks have been ordered by the Merrimac Chemical Co., of Boston. A 5-ton truck was recently shipped to England. The Edison Electric Co., of Detroit, is now having several 2-ton trucks built by this company.

THE REALM OF THE COMMERCIAL CAR



WHITING 5-TON TRUCK AT WORK

THE Whiting Foundry Equipment Co., of Harvey, Ill., is manufacturing a 5-ton truck weighing 3,000 pounds. The company is one of the first in the gasoline field to commence the manufacture of heavy trucks for severe commercial work, the manufacture of such trucks and of motor cars is only a small part of its work, as it has had much experience and now enjoys a large trade in the production of commercial transportation machinery. The truck has been under test for many months and several of them are now doing weekly demonstration work in two or three leading cities. In Chicago one that is in constant use makes 10½ miles an hour over various pavements with a full load.

That this company is awake to the almost limitless possibilities of the commercial sphere is shown by the big preparations being made for the production of such vehicles. In addition to trucks several twenty-seven-passenger pleasure cars for summer use and with convertible bodies for freight hauling are being built.

In the frame of the Whiting truck two 7-inch side channels, weighing 17¼ pounds to the foot, are held together by thirteen 3-inch cross channels, weighing 4 pounds to the foot, bolted

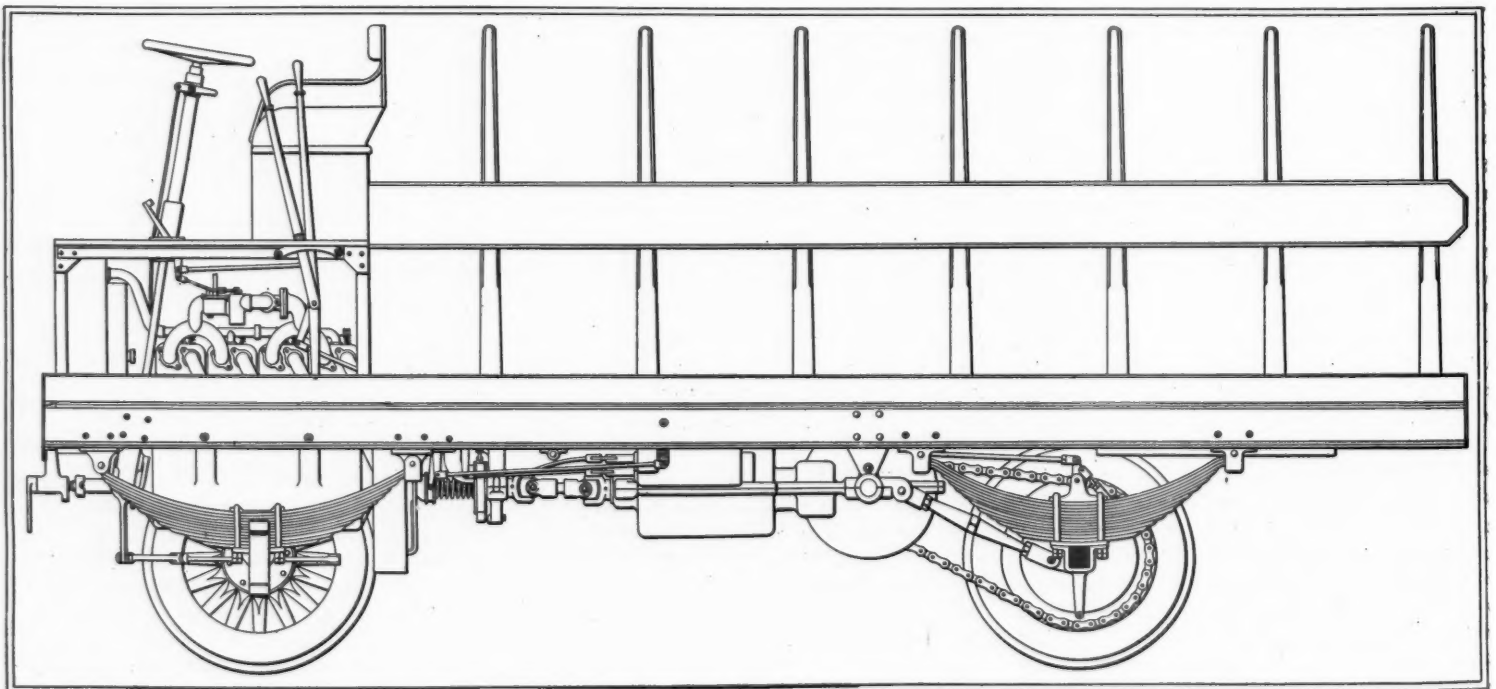
to their tops. The cross channels extend several inches beyond the main ones and form the frame work for the truck platform, which is 18½ by 7½ feet, including the space occupied by the motor and cab. On the ends of these channels is riveted a 5-inch steel plate 5/16-inch thick which extends around both sides and the ends. This plate projects sufficiently above the level of the cross channels to protect the edges of the truck flooring. Bolted the inner sides of the main channels are engine pads on which the shoulders of engine lugs rest. These pads are ½-inch thick and are retained in place by two ¾-inch bolts in each.

Four extra heavy semi-elliptic springs with leaves 3 inches wide and ¾-inch thick support the frame. The front ones are 49 inches long and have thirteen leaves, while the rear ones, of the same length, have fifteen leaves. The former at their front end are bolted to the frame and the rear ends are held in place by brackets and rollers. Both ends of the rear springs are secured by brackets and rollers.

The front axle, which is of hardened steel made in I section, dropped in the center for engine clearance, has a section 4 inches high and 3 inches wide at the top and bottom. On each end are heavy jaws for the 1¼-inch hardened steel steering knuckle pins. The spindle for the road wheels, 10 inches long, is tapered from a 3-inch diameter at the inside to a 2¼-

inch one at the outer end. The rear axle, a solid bar 4¼ inches high and 3 inches wide, is formed at each end into spindles the same size as those on the front axle. The attachment of the springs to the rear axle brings into use two castings enclosing three sides of the axle and which act as seatings for the springs, aid in supporting the brakes and have eye holes for the radius rods. Archibald 16-spoke wooden road wheels, 36 inches in diameter, are shod with 7-inch flat solid rubber tires and have heavy bronze bushings. The wheels, weigh nearly 500 pounds each. The wheel base and tread are 10 feet 6 inches and 5 feet 4 inches respectively.

The vertical four-cylinder motor with separately cast cylinders is of 6-inch bore and stroke and at 950 revolutions per minute is claimed to generate 60 horsepower, with a rating of 80 horsepower at 1350 revolutions per minute. The gray iron crank case, with ¾-inch walls, is carried on the side channels of the main frame by four arms with short shoulders, the shoulders resting upon plates bolted to the channel sides. Through the arms and frame channel pass four bolts for holding the motor in place. The case provides five bearings for the crank shaft each bearing being supported by a metal partition, the four dividing the crank case into equal compartments. By this arrangement the base of the case may be removed by taking out twelve ½-inch bolts which hold it to the case, and the crank shaft examined without interfering with the shaft or pistons. Transverse bridges in the base keep



SIDE ELEVATION OF THE WHITING TRUCK WITHOUT DRIVER'S CAB

the lubricating oil in place and in the bottom are four drain cocks for removing the oil.

A drop forged open hearth steel crank shaft, 2 inches in diameter, has its two end bearings 5 inches long and the three intermediate ones 4 inches long. These bearings are bronze bushed $\frac{1}{4}$ -inch thick, as are those of the crank and wrist pins. The throws in the shaft are $5\frac{1}{4}$ inches long, $2\frac{1}{2}$ inches wide and $1\frac{1}{2}$ inches thick. On the rear end of the shaft and integral with it is an $8\frac{1}{2}$ -inch shoulder flange to which the 350-pound, 26-inch diameter fly wheel is bolted by six $\frac{5}{8}$ -inch turned bolts.

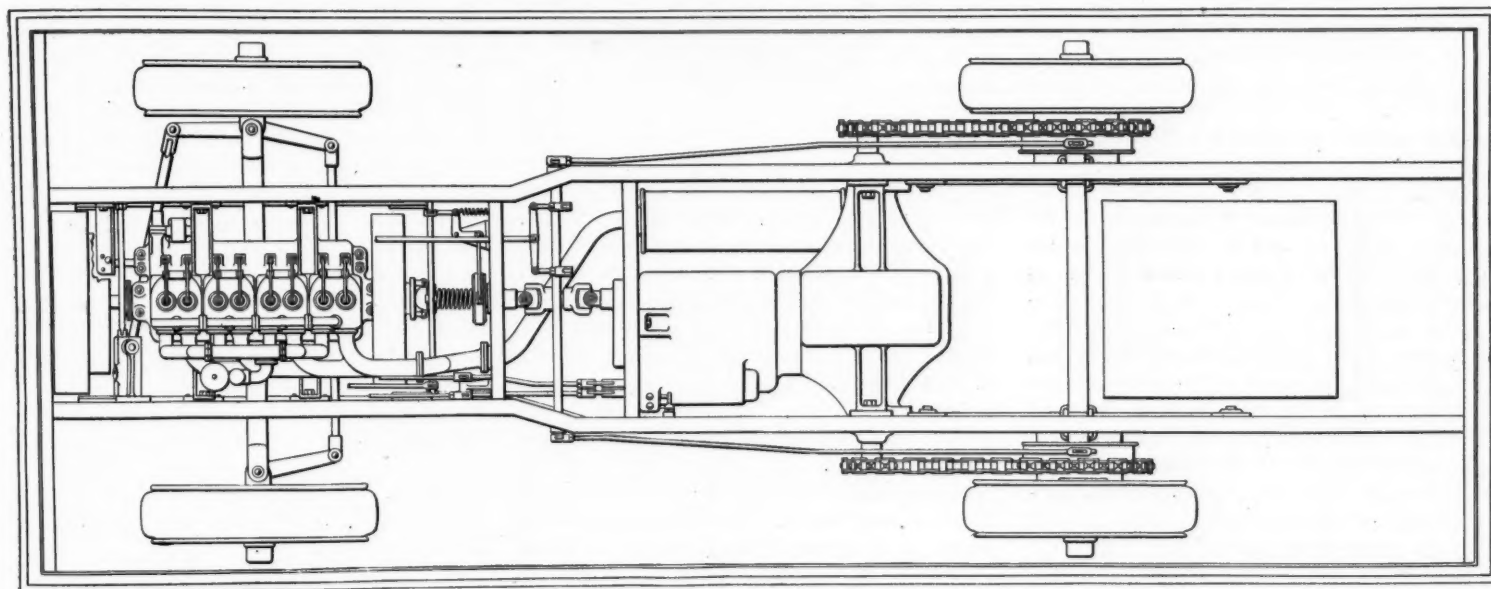
Connecting rods of I beam section open hearth cast steel and 12 inches from center to center, have wrist pin bearings $2\frac{7}{8}$ inches long and $1\frac{1}{4}$ inches in diameter. Two $9/16$ -inch



heads. The other end of each rocker arm rests upon the head of the valve stem, the valve being ordinarily held against its seating by the spring. When a cam raises one of the plunger rods the end of the rocker arm resting upon the rod is raised and the opposite end simultaneously lowered, thereby opening the valve. Between the cylinder head and the end of the rocker arm over the valve stem is an auxiliary coil spring for keeping the end of the

tank beneath the frame at the rear of the truck, a pumping system for the gasoline is needed. On the front of the motor, a single plunger pump operated by an eccentric delivers gasoline from the tank to a cup beside the driver in the cab of the truck. From this cup the fuel feeds to the carburetor by gravity. From the cup to the tank is an overflow pipe. Present intentions are to eliminate the pump and feed from the tank to the carburetor by a pressure system.

Spark plugs are placed in the right side of the cylinder heads, midway between the inlet and exhaust valve openings. Ignition current, furnished by two sets of dry batteries of six cells each connected in series, is distributed to the four cylinders by a Herz timer on the front



PLAN OF THE CHASSIS OF THE WHITING TRUCK

bolts with the nuts keyed hold the connecting rod caps in place. Norway iron is used in these bolts. Cast iron pistons, 6 inches long and with three compression rings $7/16$ -inch wide have several oil grooves around the base. One oil groove is placed just below the bottom compression ring. The piston has a flat top and straight cut sides. The rolled steel wrist pin, which has an oil groove in its upper surface, is held in place by a set screw in one of the piston eye holes.

Mechanical and interchangeable inlet and exhaust valves are held in separate gun metal valve housings in the cylinder heads, the housings being secured in place by two $\frac{1}{2}$ -inch bolts in each. The valves, which are $2\frac{1}{4}$ inches in diameter, have their peripheries beveled to an angle of 45 degrees, where they rest upon the ground seat of the housing. The inlets have $7/16$ -inch and the exhaust $\frac{1}{2}$ -inch lift. The forged steel valves, $\frac{1}{4}$ -inch thick, are made integral with a 5-inch stem $\frac{1}{2}$ -inch in diameter, which carries the tempered steel valve spring and the valve spring seat held in place with a cotter pin.

Within the crank case the 1-inch cold rolled steel cam shaft revolves on five bearings, 3 inches long each, and carries with it the eight tool steel cams, which are $1\frac{1}{2}$ inches long and keyed in place, while the keys, in turn, are wired. The $\frac{1}{2}$ -inch steel plunger rods pass through the usual guides and sleeves in the top of the crank case and upon their tops rest the hollowed ends of the bronze rocker arms. These arms are pivoted on $\frac{5}{8}$ -inch steel shafts carried in supports bolted to the cylinder

rocker arm constantly against the valve stem.

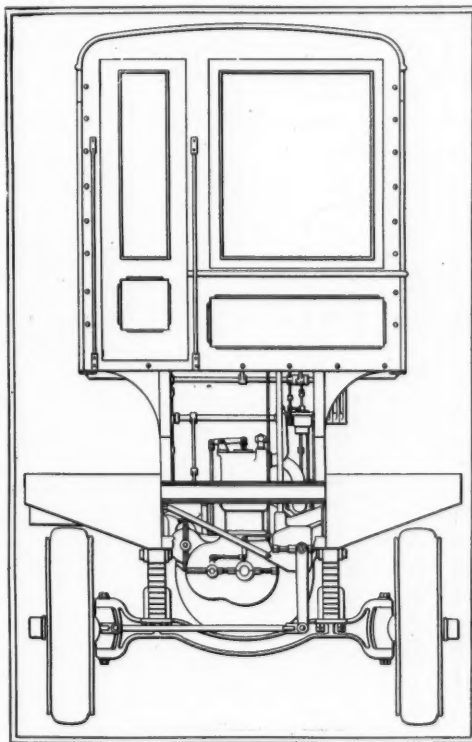
The inlet and exhaust pipes enter at the same side of the motor, the former being $1\frac{3}{4}$ -inch and the latter 2-inch castings from each cylinder. All pipes have a $3/16$ -inch wall thickness. By placing the Kingston carburetor higher than the inlet valves and the 42-gallon gasoline

end of the cam shaft. The dry batteries are carried beneath the seat. Near the seat is also carried the Pittsfield quadruple vibrator coil.

Engine speed is controlled by advancing or retarding the spark and throttling the mixture to the motor. For the former there is placed, on the steering column beneath the wheel, a small lever an upward movement of which advances and a lowering movement retarding the spark. The throttle may be opened by raising another similar lever similarly located on the left side of the steering column and closed by lowering the lever.

For motor lubrication an eight-feed McCanna oiler connects by a 3-16-inch feed duct with each cylinder and connecting rod. In the crank case a $1\frac{1}{4}$ -inch oil level is maintained, the splash from which furnishes oil spray for the piston grooves and all of the crank shaft, wrist pin and crank pin bearings. Above each bearing is an oil cup for catching the spray, and from the bottom of the cups grooves lead across the tops of the bushings. The two end bearings of the crank shaft have individual oil cups. Splash is depended upon for the cam shaft bearings.

The $\frac{3}{4}$ -inch water cooling spaces in the jackets are supplied with water from a vertical copper tube radiator, containing 328 feet of $\frac{5}{8}$ -inch tubes that connect the top and bottom tanks. A Lipman gear pump maintains circulation. The water, starting from the bottom of the radiator, passes the pump, enters the base of each water jacket and after circulating through exits from the top and passes to the top of the radiator. Eight gallons are needed. Cooling is assisted by a 20-inch, six-blade fan



FRONT ELEVATION OF WHITING TRUCK



FRANKLIN TOURING CAR AS AN AUTOMOBILE DELIVERY

encased behind the radiator and driven by a flat belt from a large pulley on the end of the crank shaft.

The clutch, illustrated herewith, is of the metal-to-metal class and has the drum in the form of a heavy radial flange B bolted to the fly wheel A near its periphery. On the outer surface of this drum two semi-circular friction bands CC, connected with the clutch shaft, are tightened on the drum, rigidly engaging the clutch and engine shaft. Keyed to the front end of the clutch shaft H is a two-arm bracket D, on which are pivoted the levers EE. These levers at their outer ends connect with the friction bands CC and towards their inner ends carry the rollers KK that bear upon the cone G, which is slidable upon the clutch shaft. The other ends of the friction bands are connected with the bracket D by adjustable eye bolts. Attached to the inner ends of each lever are coil springs FF tending to keep the ends of the levers together. To engage the clutch the cone G is forced forward by a pedal separating the inner ends of the levers and causing the outer ends to tighten the friction bands. To disengage the clutch the cone is released by the spring and the coil springs F slacken the friction bands. In each friction band are three graphite grooves M for lubricating the metal surfaces.

Between the clutch and transmission two universal joints are connected by a squared shaft with a sliding sleeve, giving the same results as an Oldham coupling.

The Mercedes type of sliding gear transmission giving three speeds and reverse has three-point suspension and the castiron case is divided horizontally, all the bearings being supported in the top half. Both main L and counter shafts K run on $4\frac{1}{8}$ -inch plain bronze bearings. The former shaft is $1\frac{11}{16}$ inches and the latter $1\frac{5}{16}$ inches in diameter. The main shaft carries the gears G, F, E and D, the first one being integral with the shaft and the latter three keyed in place. On the counter shaft are three sliding gears A, B and C, the former two being united so as to slide together. On the shifter rods M and N are collars O and P used for moving the gears on the counter shaft. On the end of the counter shaft is the bevel gear Q meshing with the large bevel R, keyed to the differential on the jack shaft that carries sprockets for a double chain drive.

For high speed the gears A and B are moved

until A meshes with D, when the drive is from the main shaft through gears D and A to the counter shaft, and through the bevels Q and R to the jack shaft and thence to the road wheels. For second speed ahead B is moved into mesh with E; for slow speed C meshes with F, and for the reverse C is meshed with the idler H, carried on a separate shaft in the bottom half of the case and constantly in mesh with gear G. All gears are of $2\frac{1}{2}$ -inch face, four pitch and run in oil. The three forward speeds are $2\frac{1}{2}$, $5\frac{1}{2}$ and 11 miles per hour, and the reverse 3 miles per hour.

Two levers at the left of the driver's seat give the four speeds. The inside lever when pushed ahead gives high, and drawn back sec-

ond speed. The second lever in forward position gives slow speed, and back gives reverse. Patents are pending on a single-lever device for the four speeds. The spur gear differential works on a divided jack shaft $2\frac{7}{16}$ inches in diameter which carries a thirteen-tooth sprocket on each end. These sprockets drive by two-pitch, $1\frac{1}{4}$ -inch face Diamond chains onto thirty-four-tooth sprockets on the rear road wheels. Hexagonal radius rods of 2-inch diameter and adjustable by lock nuts at either end are fastened to the spring seats by eyes and bolts.

Two 18-inch band brakes on the rear hubs, with $2\frac{1}{8}$ -inch steel bands, leather faced, are set by a backward movement of a lever beside the driver's seat. On the clutch shaft is a pedal-operated band brake for ordinary use. The clutch, when thrown out by the pedal, is interlocked so that a locking device on the sliding gears is withdrawn and at the same time the clutch shaft brake is applied. With the engaging of the clutch is the loosening of the brake and the locking of the sliding gears. This interlocking mechanism prevents the engaging of the clutch until driving gears in the transmission case are completely in mesh.

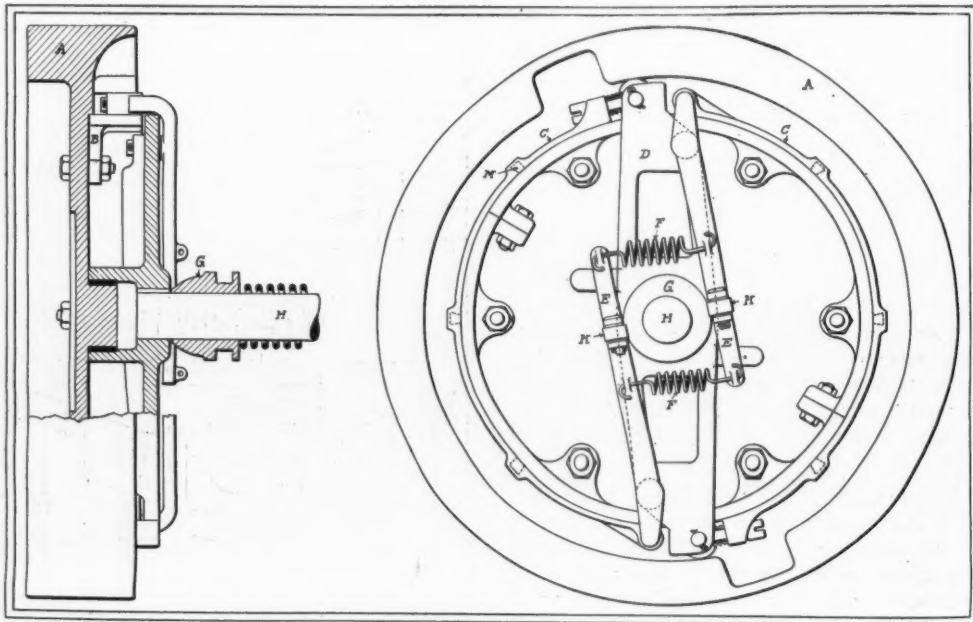
A worm and sector steering gear of the company's design is mounted at a small angle from the vertical. The sector is mounted on a square shaft and the lever to the steering rod is attached by a forked end giving a bearing on both sides of the sector. It is claimed that the pitch of the sector is such as to lock it in any position. The $1\frac{3}{16}$ -inch steel steering shaft carries an 18-inch steering wheel on its upper end. The shaft is encased in a $2\frac{1}{4}$ -inch seamless tubing. Standard mufflers are carried near the rear axle.

THE COMMERCIAL CAR ABROAD

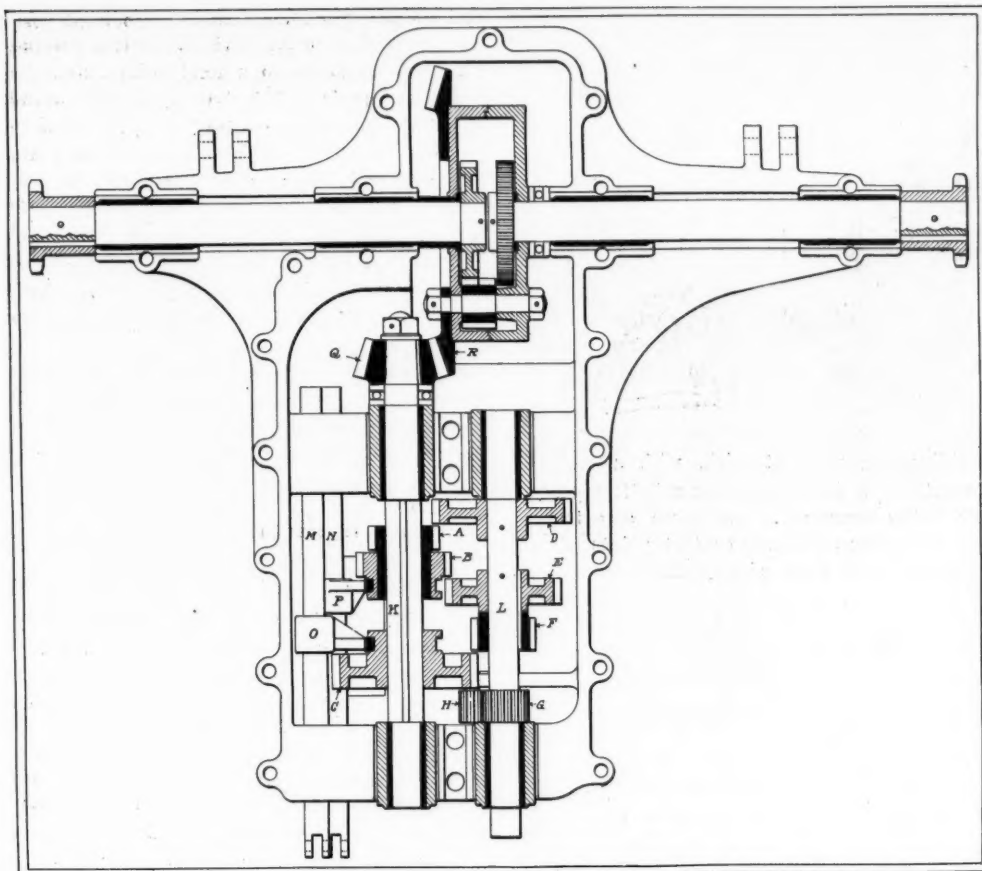
A commercial car endurance run from Paris to Rouen, France, a distance of 79 miles, organized by l'Auto, and under the auspices of the Automobile Club of France, was run March 13. Four cars were entered, three started, one finished the entire course, the second came within 5 miles of the finish, while the third completed three-quarters of the distance. The fuel used by each car was heavy kerosene oil, and the winner, a 16-horsepower Delahaye truck weighing 3,377 pounds, including its

load, consumed 52,503 pints of this oil to cover the 79 miles. The average speed maintained was about $18\frac{1}{2}$ miles per hour. The two-cylinder 12-horsepower Brillie truck, which with its load weighed 8,800 pounds, was forced to stop en route for repairs and, although the vehicle continued after this was done, it had another breakdown when the finish was almost in sight. The third car was the Constantini & Charlon truck.

The Johannesburg and General Motor Omni-



SECTION AND ELEVATION OF CLUTCH IN WHITING TRUCK



PLAN OF THE TRANSMISSION GEAR OF THE WHITING TRUCK

bus Co. was recently organized in Johannesburg, South Africa. The capital of the company is \$75,000, and it was organized because of an opportunity to purchase at a low rate price twelve 12-horsepower motor buses. A passenger and merchandise service will be established.

Felix Poton, a French manufacturer, who used a 10-12-horsepower de Dion-Bouton delivery wagon last year and kept an account of the expense of the service, found that during 230 days of service the vehicle covered 17,477 miles, or a daily average of 76 miles. Its average load was always about 3,300 pounds, and it was used about 10 hours every day. The total consumption of fuel was 13,199.91 pints, which cost \$312.55, and the expenses for repairs, lubricant and incidentals was \$806.51.

It is claimed that nearly 100 motor trucks or vans are used by the breweries of London, England. The Albion brewery uses regularly twelve motor vehicles of its own, besides hiring extra ones in special instances.

One of the largest commercial car manufacturers in the world, Milnes-Daimler, Ltd., of England, is reported to have orders for more than 150 omnibuses to be delivered in various sections of England. It also has many orders for cars to be shipped to the British colonies and to other countries.

Two new omnibus transportation companies have recently been organized in London. One is the London and District Motor Bus Co., with a capital of \$2,000,000, and the other is the London Power Omnibus Co., with \$1,000,000 capital.

Under the new tariff of India, motor cars, with the exception of those designed to carry goods, are dutiable at 5 per cent ad valorem. The latter are free of duty. This allowing of commercial cars to enter free of duty is established in several countries and is a sign of the times.

IMPORTS AND EXPORTS

The best evidence that the German automobile industry is rapidly taking an important position in the world's automobile trade, may be seen in the fact that during 1904 the export trade amounted to \$2,944,250, while in 1903 the value of the cars exported was only \$1,322,000, and in 1902 \$1,185,250. The number of motor cars shipped to foreign countries is not given, but instead the total weight of the cars. France bought a total weight of 955,240 pounds, while the cars shipped to that country in 1903 weighed only 374,220 pounds. Great Britain is next as a buyer, followed by Austria-Hungary, Belgium, Russia and Switzerland. The importation of foreign cars by Germany shows a steady increase and more than three-quarters of these cars are made in France. The value of the imported cars dur-

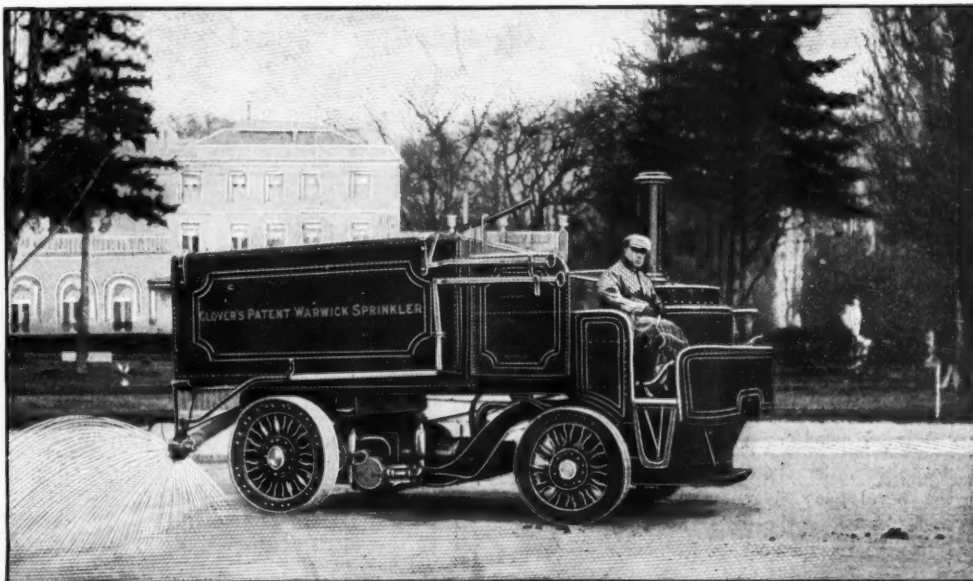
ing 1904 was \$1,884,250, while in 1903 the value was \$1,256,500, and in 1902 \$888,500. The total weight of cars imported in 1904 was 1,860,980 pounds, of which 1,350,580 pounds is the weight of the French cars.

While in most every country where automobiles are made and exported the latter branch of the industry shows a decided gain over the previous year's exports, there is a decline in the shipment of English cars to foreign lands. Last year the value of these cars amounted to \$1,336,842, while in 1903 their value was \$1,399,778. The importation of foreign cars shows a marked increase, the value being \$10,345,007, while for 1903 the total value amounted to only \$8,399,413, and in 1902 to \$4,862,265.

It is reported that French manufacturers are striving hard for the automobile trade in Tunis, Africa. There are at present about thirty cars in the country, mostly of French origin. Among them are several de Dion, Peugeot, Mors, Renault and Turcat-Mery cars. The roads are fair and there are many stretches of from 10 to 15 miles which are almost level. The fastest long distance run made there is credited to M. Tabone, who drove a 24-horsepower Turcat-Mery from Tunis to Sfax, a distance of 341 miles, in 9 hours, or over 37½ miles per hour.

The customs duty on automobiles in Guatemala is the same as that on carriages, the duty being assessed per kilogram—2.2 pounds—as follows: Up to 100 kilograms, 30 cents; 100 to 250 kilograms, 28 cents; 250 to 500, 25 cents; 500 to 750, 22 cents; 750 to 1,000, 20 cents; 1,000 kilograms and upwards, 17 cents. These duties must be paid 30 per cent in United States gold and 70 per cent in Guatemalan currency, so that, at the current rate of exchange, the equivalent in United States gold of the duties is 36 per cent of the nominal rates, as the currency of Guatemala is now worth 8 cents gold for one peso.

There is no doubt that South Africa will shortly prove an excellent market for motor cars of all descriptions, and American manufacturers will find ample scope for their enterprise in this department. Recent advices say that Cape Colony is to have a service of specially constructed automobile mail wagons, to supplement the railway system. These wagons, operated by a four-cylinder motor developing 24 horsepower, will accommodate six passengers, in addition to a driver, and half a ton of baggage.



AN ENGLISH MOTOR STREET SPRINKLER



THE SPARK COIL

Minneapolis, Minn.—Editor MOTOR AGE—I am a recent subscriber to MOTOR AGE and therefore ask whether you have ever published an article upon the principles and mechanism of the spark coil used in automobiles; if you have not published such an article, it would seem to me that it could not be otherwise than of great interest and of value to readers of MOTOR AGE. I should very much like to see an article, briefly but concisely giving the "anatomy," "physiology," and "pathology" of the spark coil. Illustrations would undoubtedly make the article more comprehensive. I have some electrical works and several encyclopedias, but none of them treat of this subject other than in a very general way. There are several kinds of coils described in these works, but they give very little light upon the subject as applied to automobiles or gasoline motors.

There seems to be a general impression that the imported coils—particularly the French—are the best obtainable. Can it be that the American electrical manufacturers are not capable of producing as good coils as the French? If this is so, it would imply that the spark coil is an intricate mechanism and should be treated with great care. The following questions have occurred to me, and it would seem must be of interest to all operating automobiles who are desirous of becoming thoroughly familiar with the entire machine:

Are any other than induction coils with vibrators used for ignition purposes? Are coils so wound that only a certain current can be used to give the best results, or can the coil be adjusted when the battery begins to weaken that the maximum efficiency is still maintained? What voltage and amperage is usually employed? Is there much danger of injuring a coil by such variation in the battery as by doubling it? What is the specific function of the vibrator? Some manufacturers of timers claim that it matters not if the coil does not vibrate; how can this be true? It is said that the vibrator requires adjustment as the battery weakens; what is to be understood as the proper method of procedure in so doing? I have seen repair men do such adjusting, but it was done without any other intelligence than "turn the screw and try." Which is considered best, rapid vibration with short space between the contact points, or slower vibration with space between the contact points? What causes sticking of the vibrator, and is there any method by which it can be avoided? Some well known manufacturers of ignition apparatus claim that their coils never stick and that it is impossible for them to stick. I have been informed by a prominent electrical engineer that it is impossible to make

a coil which will not stick, with a variable current supply as results from a battery gradually being consumed. Are there any important requisites about the contact points of the vibrator other than simply that contact is necessary? I was informed by the electrical expert mentioned that the contact points are very important, that sparking at the vibrator ensues when they are not perfect, and that this results in a welding causing sticking; he says sparking at the vibrator should not occur. I have been unable to avoid sparking at my vibrator at all times and am unable to find out what to do in order to avoid it. Would iridio-platinum points prevent this welding, which is said to occur at the contact points, this being a very high fusing alloy? Should the contact points be as small as possible, sharp, or has this nothing to do with the matter? I do not understand how any perceptible welding can take place at the vibrator with the current generally employed in coils of this character. If coils are such delicate instruments is it not better then to have a coil for each cylinder in order to avoid working them so hard as is necessary when only one coil is used for two or more cylinders.—O. A. WEISS.

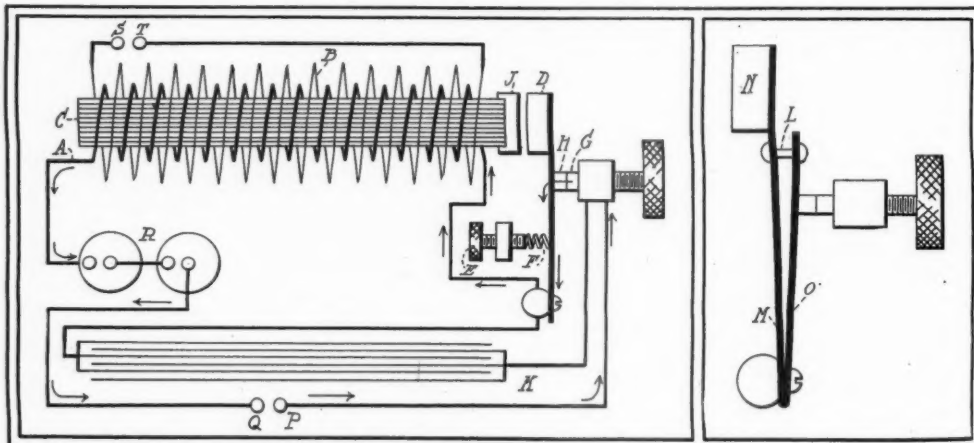
The subject of spark coils has been discussed several times in MOTOR AGE, but as the principles of coil action and the consequent features have not been presented recently it agrees with the correspondent that an effort to clear the somewhat cloudy subject of coils is not now out of place.

The jump spark coil consists of a soft iron core C, containing a bundle of small wires held together. Around these are a few layers of large insulated wire A of about 16 gauge. Surrounding this coil A is another coil, B, which contains a great many turns of the finest insulated copper wire. If the current from a couple of dry cells be connected to the ends of the coil A the core C will be mag-

netized and when the battery is disconnected the core will be demagnetized. An iron armature D is attached to a steel spring, and the adjustable spring F keeps the contact point H of the armature against the fixed contact point G, which is also adjustable. Now when the battery current is put through the primary coil A and the core C is magnetized, it attracts the iron piece D of the armature. Tracing the current by the arrows from the battery it is noticeable that when the points P and Q touch, it passes to the contact point G, and from it to the point H on the armature, with which it is in contact, and finally, as shown by the arrows, through the primary coil back to the battery. It cannot continue flowing through this primary coil, for as soon as the latter is energized and made a magnet, it attracts the iron of the armature D and draws it toward the core. As soon as D moves there is no further contact between H and G, the current leaves the coil A, and as C has ceased to be magnetized it no longer attracts the armature D, so the spring F forces it away. As soon as the contact H touches the contact G the circuit is closed again and the armature drawn to the core. So, as long as the circuit is kept closed at P Q the armature will vibrate back and forth exactly the same as the hammer on an electric bell. The circuit breaker on the motor closes the contact P Q intermittently. The end of the core is capped with a brass ferrule J so that the iron armature does not touch the iron core. If the two met there would be sufficient attraction between them to cause a sticking. Brass is non-magnetic and keeps the iron from touching iron.

There is shown at K a condenser, which consists of alternate layers of insulating material and tin foil, so that the tin foil pieces do not come in contact. The alternate pieces of foil are connected, and the one set connected to the armature D and the other to the contact G. The condenser is essential to obtain a long and dense spark in the secondary, and to reduce the spark at the contacts H and G. The coil will work without a condenser but not so well.

The secondary coil is wound over the primary and has ends S and T. When the core is energized and then the circuit broken the rapid loss of magnetism, or flux, induces a strong momentary current in the secondary coil, causing it to jump the arc S T. So, while the armature vibrates it produces a series of sparks in the secondary gap. With a non-vibrator coil there is no armature D and no contacts H G. The only contact is that made by the circuit being closed at P Q and the



THE PRINCIPLE OF THE SPARK COIL

NON-STICKING VIBRATOR

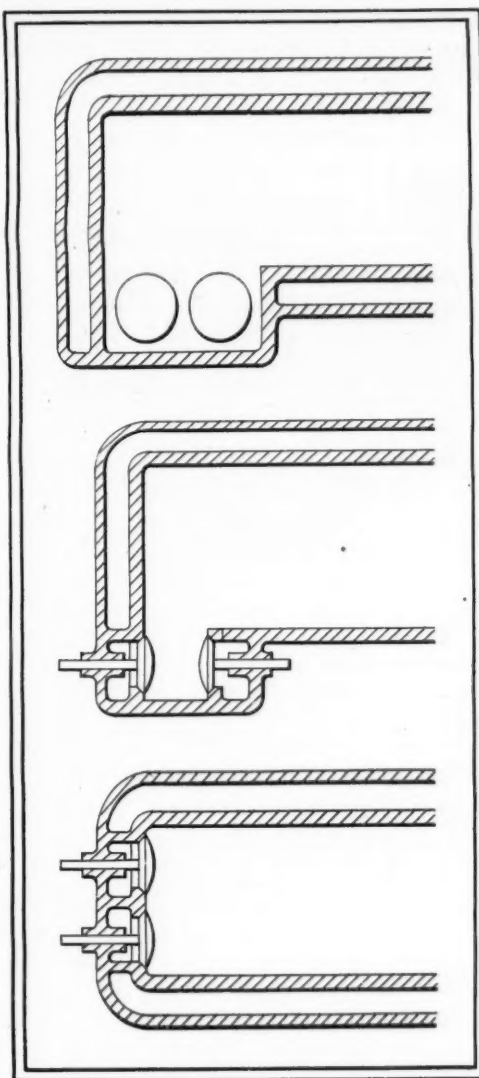
secondary spark produced is only a single jump, as the circuit is broken at P. Q. With the vibrator coil a series of sparks are made as long as the contact is made at P. Q. This is where the vibrator and non-vibrator coils differ.

Two years ago French coils were superior to those of American manufacture, but today they are generally inferior. The French coils are hand made and show a marked lack of similarity in two coils that should be duplicates. The spark coil is a rather a delicate piece of mechanism and should be treated with care and the exercise of judgment. All coils are wound for a certain voltage and the makers will not guarantee results if this is exceeded or lessened. For that reason a coil works better on an accumulator than it does on dry batteries, as the voltage drops with the latter as it is discharged, while with the accumulator the voltage is practically constant. With dry batteries, as the cells weaken, it is necessary to reduce the spring tension and to adjust the contact screen so that the armature is closer to the core. The idea in adjustment is to have the armature vibration as rapid as possible. The rapidity of vibration depends upon the distance between the armature and the core, that is, the amplitude of vibration, and the spring tension, which is the period of vibration. Rapid vibration is obtained by short opening and stiff spring. There is a limit, of course, as with too stiff a spring the length of time the contact is made will not be enough to energize the core sufficiently to draw the armature against the spring tension. One cause of sticking was given above as the iron core touching the iron armature. The brass end on the core prevents this. Another place for sticking is between the contacts H and G, caused by fusion or dirt. These should be quite large in diameter—at least $\frac{1}{8}$ inch—so as to resist the current as little as possible, which will reduce their heating and becoming fused. The second view in illustration shows a non-sticking vibrator. The armature and contact are on separate spring pieces. In the armature piece M is riveted a button L, which extends through a hole in the contact spring O with a head at the other end. If the points tend to stick, as the armature is drawn toward the core, its inertia, due to being in motion, will break the fusion, as the button strikes O.

WATER IN GASOLINE

Toronto, Ont.—Editor MOTOR AGE—In connection with my automobile stable is a 100-gallon gasoline tank buried in the ground. When gasoline is placed in the tank it is filtered through chamois and from the best grades of gasoline considerable water is removed. On filling the tank in my car from the underground tank, a half-pint of water is generally removed by a chamois filter. Where does this water come from; was it originally in the gasoline and the first filter failed to remove it, or did the water form through condensation in the tank?—S. P.

Gasoline has an affinity for water. For instance, a can of good gasoline fresh from the refinery will contain no water. If the can is left open two things occur. First, the gasoline lighter hydrocarbons volatilize and the gasoline becomes heavier. Second, it takes up moisture as follows: If a volume of air is saturated with moisture and its temperature is lowered, the moisture is precipitated, as at low temperatures the air cannot carry as much moisture. The evaporation is a cooling process



ARRANGEMENT OF MOTOR VALVES

and the moisture from the surrounding air is precipitated into the can. All gasoline contains some water, but in fresh fuel the proportion is so slight as to cause no trouble. Probably most of the water removed from the large tank was due to condensation.

KEROSENE FOR FUEL

Los Angeles, Cal.—Editor MOTOR AGE—My local druggist informs me that kerosene can be used for motor fuel in conjunction with gasoline, the latter being used in starting the car. Kindly inform me what piping arrangements will be needed and how will the switching from one fuel to another be accomplished. What is the relative consumption of kerosene as compared with gasoline?—A. H. ROSS.

The motor can be started on gasoline and then changed to kerosene. One French carburetor for this purpose has two float chambers and two operating nozzles, one float chamber and its aspirator for each fuel. These are connected with fuel tanks with a cock at the carburetor for each. Each nozzle feed and float level is set for the fuel. After starting with the gasoline cock open, and the kerosene cock closed, it is only necessary to reverse the cock openings to run on kerosene. The quantity of fuel used per horsepower hour will be much less with kerosene—about two-thirds of the quantity of gasoline. The weight of fuel per horsepower hour will be about the same, but kerosene being much heavier to the unit volume, lesser volume will be required, which is practically proportional to the weights per unit volume. This, of course, will vary with the gasoline and with the kerosene used. The kerosene has a still further advantage as a

pound contains more British thermal units than a pound of gasoline. The catalogues of two prominent makers of both kinds of engines claim a fuel consumption of 1 pint per horsepower hour, so if that is the case the relative economy is in the local price ratios of gasoline and kerosene.

CONVERTING A CAR

Austin, Texas—Editor MOTOR AGE—I wish to change my steam runabout to a gasoline car. Will you please advise me what, in your judgment, is the best 8 to 10-horsepower double-opposed motor, and also what is the best transmission gear furnishing two forward speeds and a reverse? Will you please suggest two or three makers with whom I may correspond and from whom I can get low prices?—W. G. BELL.

The makers advertising in the columns of MOTOR AGE are capable of supplying the wants expressed satisfactorily, as one may obtain from them a double-opposed motor with either suction or mechanical inlet valves, as well as planetary and sliding gear transmissions. The parts makers are now putting out thoroughly reliable goods and it is a question for one to decide personally what systems to use. Possibly the cheaper way would be to correspond with some parts concern with view to shipping the car to its factory to have the alterations made.

LOCATION OF VALVES

Britt, Ia.—Editor MOTOR AGE—Will you kindly advise me what the respective degrees or percentage of efficiency will be in the cylinder heads in the accompanying sketches? In the uppermost one the valves are perpendicular, and in the others horizontal. Is it considered good practice to place the inlet valve as in the first? The writer has had his attention called to all the newly designed motors, which seem to favor placing the valves in the head, and it would seem that there could be no loss of explosive power in such an arrangement, while in the constructions in the two upper views it would seem that the charge must first be ignited in the pocket and then travel in two different directions before applying the power.—E. F. LARSON.

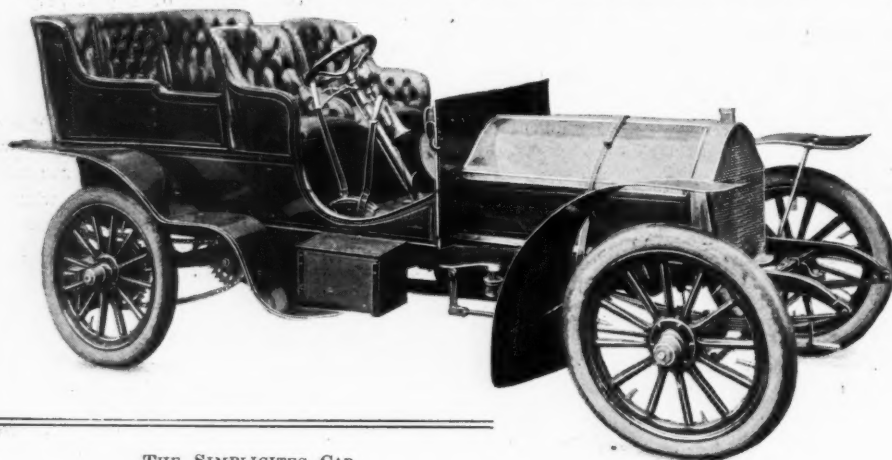
MOTOR AGE will not attempt to discuss fully cylinder design. Briefly it recommends vertical valves in the head. A horizontal valve wears on one side of the valve stem, which, of course, brings the valve center eccentric to the valve seat, producing an improper seat, and losing its valve properties. Horizontal valves mechanically operated require a stiffer spring than if placed vertically, which of course is an objection. A suction valve will not operate properly if horizontal on account of the friction due to its own weight. Valves in the head produce a more symmetrical cylinder form, a more simple casting, and for the contained volume have less surface. The charges enter and leave more directly and without the number of turns, each of which means a loss due to the change of direction. This construction is at present the most approved.

VULCANIZING TIRE PATCHES

Kansas City, Mo.—Editor MOTOR AGE—Do you consider it necessary to have patches on an inner tube vulcanized on?—F. U. G.

It is preferable to vulcanize all repairs made on rubber, as a permanent job will not result from cement. Hence vulcanizing is advisable, but not necessary. The first expense will be more and the total probably less if the patch is vulcanized.

AUTOMOBILE DEVELOPMENT



THE SIMPLICITES CAR

THE SIMPLICITES CAR

The Simplicites Auto Co., of Middletown, Conn., is manufacturing automobiles of distinctly European design, intended principally for the foreign market, but which will also be supplied to the American trade. The company is building two, three and four-cylinder cars with either rear or side-entrance tonneaux. The power rating of these models is from 12-15 to 24-28 horsepower. Principal features in them are final chain drive, special radiator, reversible motors started from the seat, and operating levers inside of the car body.

The pressed steel frame, of usual section, is narrowed alongside of the bonnet and the side pieces, besides tapering from the center to each end, are curved downwards at the front to serve as supports for the front ends of the semi-elliptic springs. Rigid cross pieces connect the side members at the front, rear and intermediate points.

Five leaf, semi-elliptic springs, mounted directly beneath the side members of the frame, are used front and rear, being clipped to the axle seatings by heavy double clips. Because of the motor location a straight front axle is used and the final chain drive allows of a stationary rear one. The artillery wood wheels, with cast hubs, are strongly but simply made and shod with Hartford clincher tires.

In the 24-28-horsepower car a vertical, four-cylinder motor is carried beneath the usual form of hood. By the use of a special device the motor can be operated from the seat at speeds ranging between 80 and 2,000 revolutions per minute. Motor support on the frame, cylinder construction and valve openings are typical. A new carbureter of the company's design and with automatic mixture control is located low down at the right side of the motor and has the recognized throttle control. The motor can be started from the seat without cranking and reversed by electrical apparatus.

The radiator, with 2 gallons capacity, forms the front of the hood and has the usual connection with the cylinder jackets and is assisted in cooling by a fan and pumps, both belt driven. The radiator is of novel appearance with its twenty-one rows of circular openings from front to rear, each containing sheet metal in the form of a five-pointed star for extra radiation. The interior of the radiator is one common reservoir, the course of the water being much the same as that in others of similar construction.

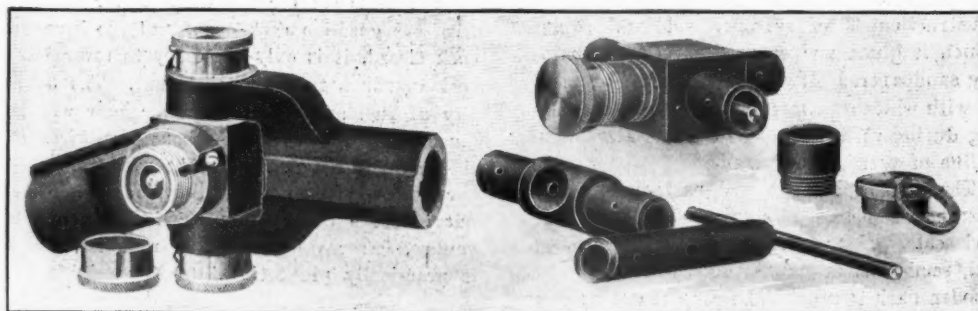
A large diameter clutch, said to be capable of carrying a 40-horsepower load, flexibly connects the motor and sliding gear transmission. The latter, with the differential, is contained in a gear box placed almost beneath the front seat. Three speeds and reverse are obtained by one lever. Both the variable and differential gears run in oil and ball thrust removes end pressure from the bevel gears. From medium sized sprockets on each end of the counter shaft chains drive to large sprockets secured with the emergency brakes to the hubs of the rear wheels. The emergency brakes are hand operated and on the counter shaft are double band ones, pedal operated, for ordinary use.

On the steering wheel are the throttle and spark control. The placing of the speed control and emergency brake levers inside of the body walls is for operating convenience. The pedals are convenient and that for the clutch is connected with an eccentric so that a very slight pressure operates the clutch.

The body shown in the illustration has a rear entrance to the tonneau seats, but side entrances are manufactured. The body outside is covered with sheet steel and painted in royal blue with fine gold lines. The blue leather upholstery is trimmed with black beading. Individual front seats are supplied. Over the front wheel large flaring fenders are used and stepped ones cover the rear wheels and chains. It is claimed for the fenders that their construction renders buckling and twisting almost impossible.

UNIVERSAL JOINT

One of the principal products of the Blood Bros. Automobile & Machine Co., of Kalamazoo, Mich., is the universal joint herewith illustrated. The center block is in the form of a steel cube, $1\frac{3}{4}$ inches on each side, and has large bearings for the two cross pieces.



THE BLOOD UNIVERSAL JOINT ASSEMBLED AND SEPARATED

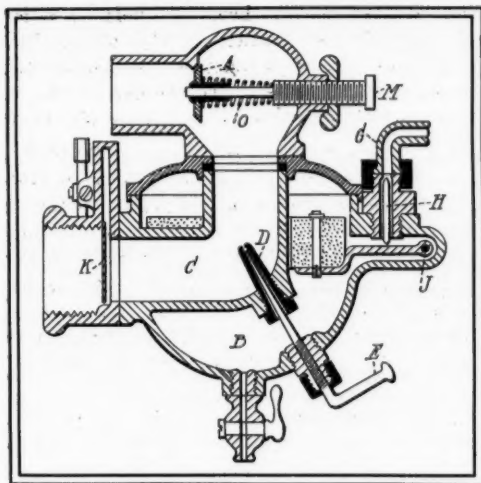
One of these passes through a hole crosswise in the enlarged portion of the other. The larger one is held in place by the smaller one passing through it and the smaller one is, in turn, locked in place by a $\frac{1}{4}$ -inch pin passing through it crosswise in the longitudinal hole in the larger one. Each is made of steel and in the end receiving the shaft is 3 inches long and $1\frac{3}{4}$ inches in diameter on the outside. Over the bushings on the ends of the larger piece are screwed grease caps which prevent the pin from coming out. Large bearing surfaces are provided for every part of the joint. The fork bearings are hardened steel bushings, one end of each bushing being forced into the hole in the fork and the other extending outwardly, forming a long bearing surface, which is threaded for the grease cup. The pivotal bearings are each 1 inch long, and are interchangeable and made of hardened steel. Two are 1 inch and two are $\frac{7}{8}$ -inch in diameter. Brass grease cups are used exclusively and on the ends of the forks are light springs to prevent them from coming loose. It is said sufficient grease or oil for 3,000 miles of motor car travel can be carried in each. In the holes in the forks at the inner ends of the bushings felt washers are used. They come against the face of the cube and prevent oil coming out or dust entering. The coupling is $8\frac{1}{2}$ inches long and will revolve in a $5\frac{1}{2}$ -inch circle.

The company also manufactures a ribbon gasoline gauge, for tanks on automobiles. In a case on the top of the fuel tank is placed a pulley over which passes a graduated ribbon, with a cork float attached to one end and a sinker to the other. The float rises and falls with the gasoline level, and the sinker keeping the ribbon tight the latter shows by its scale the quantity of fuel in the tank.

THE SCHEBLER CARBURETER

The chief distinction of the new pattern of the Schebler carbureter, sold in this country by F. H. Wheeler, of Indianapolis, Ind., is the placing of the mixing chamber and spray nozzle concentric with the float chamber.

Within the spherical bowl B, the float chamber, is tube C, in the elbow of which is the spraying nozzle D with the adjustable needle valve E. The shellaced cork float F, nearly equal in diameter to the interior of the float chamber, surrounds the mixing pipe, and is attached to a short arm pivoted at J, thereby controlling the entry of gasoline by the pin valve H. The reversible union G permits the pipe from the fuel tank to be run in any direction. At the bottom of the float chamber is a drain cock for cleansing purposes. Ordinarily the air enters past the compensating valve A, the mixture passing to the motor by the throttle K, but if desirable, the throttle



THE SCHEBLER CARBURETOR

can be interchanged with the air valve, the angular disposition of the nozzle in the elbow of the mixing pipe allowing the air to travel in either direction.

The compensating valve A does not close the entire air inlet opening, an open space remaining at the side of the pipe adjacent to the spraying nozzle. The valve slides on a slender stem ending in the adjusting screw M. The valve, held against the seat by the coil spring O, remains closed, with the engine running at normal speed, but on speeding the suction from the cylinders increases the degree of vacuum within the mixing tube and the tendency would be to draw more gasoline through the nozzle, giving too rich a mixture. To obviate this the suction acts on the valve A, overcoming the spring and letting more air enter, thereby reducing the degree of vacuum and also the suction on the spraying nozzle, with the result that too much gasoline is not drawn in. The operation of the compensating valve is thus to tend to maintain an even suction, the adjustment of the spring O permitting the valve to open always at the proper time.

FROM MISSOURI

That St. Louis is in the motor car body building business extensively is shown by the fact that this year both H. F. Borbein & Co. and the J. H. Neustadt Co., have extensive lines of up-to-date bodies for both pleasure and commercial cars.

The manufacture of bodies with side entrance, detachable rear seats is a specialty of H. F. Borbein & Co. The detachable portion is a complete box in itself, having its own front and bottom, and is removably attached to the main flooring of the car and the front seats. The bottom measurements of the body are 92 by 36 inches. The doors are of average width and are hung with polished brass hinges and have brass handles. The front seats are individual with the dividing partition almost as high as the sides. The construction is of seasoned ash and poplar, which is glued and screwed together before being sandpapered. After this all bodies are coated with white lead as a preventive of wood raising during shipment. The concern also makes a line of pressed steel frames.

The latest Neustadt designs include a side entrance detachable tonneau with wide doors and seats. The front seats are either individual, semi-individual or double, and a straight wooden dash is used. The body frame extends forward serving as a bonnet base. An upholstery choice of genuine leather, imitation

leather, heavy cloth or corduroy is given, all being furnished either plain or tufted. The bodies are made of clear ash and yellow poplar.

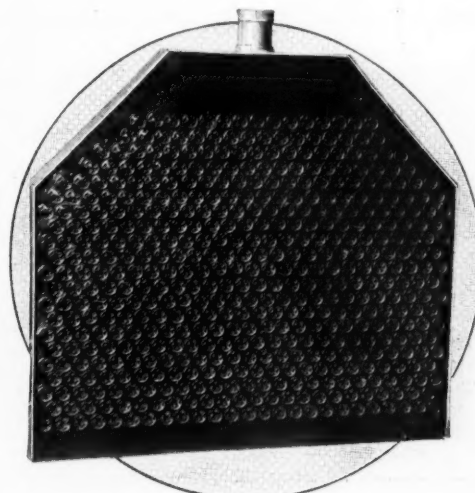
UP-TO-DATE CAPE TOPS

In the Cape-London automobile top, for use on touring cars, the center bows are made so that when folded they extend back as far as either the front or rear ones. This is important in rear entrance cars as occupants of the tonneau can enter or leave the car without raising the top. In side-entrance machines the four-bow style predominates, the two front bows being attached to the ironing of the front seat and the two rear ones to the ironing of the back seat. When the top is folded back the front bows, after removal from their supporting studs, are folded back beside the rear bows, the eye holes in the bows being placed on another stud and secured by a cotter pin. For rear entrance machines the five-bow pattern is most serviceable. Both of these styles have leather straps extending from the front edge of the top to clasps on the dash. All top coverings used are made of mackintosh or artificial leather of any color. The bows, made of ash, are finished in their natural color. Brewster fasteners are used throughout. Each top is equipped with back curtains, and Pyralin windows may be placed in both back and side ones. For wet weather a front curtain with large windows can be used to afford ample weather protection. The London Top Co., New York, manufactures these tops.

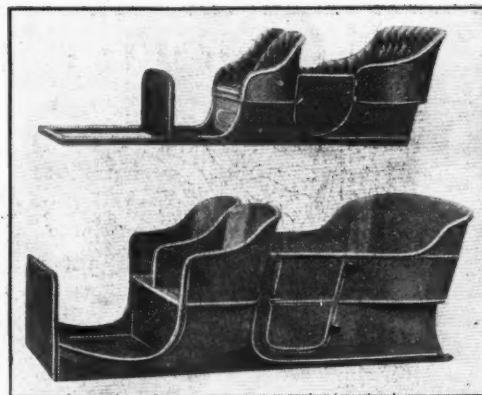
MOTOR CAR LITERATURE

A late addition to automobile book literature is the Automobile Hand-Book, a small volume by L. Elliott Brookes, formerly of the MOTOR AGE editorial staff. The book is in pocket size and has all matter relative to the automobile arranged alphabetically, making it very convenient for reference. Running through the 320 pages is a uniform series of over 100 line drawings showing the construction and operation of parts of the motor car. This is the first volume on automobiles provided with such a series of illustrations. Most of the illustrations are lettered and the reading matter referring to them is placed on the same or opposite pages. The book is well bound in leather. It is published by Frederick J. Drake & Co., of Chicago.

The New England Automobile Guide Book, published by the N. E. Automobile Guide Co., of Boston, contains thirty-four road routes throughout New England. The routes, properly indexed, are known by number, the direc-



SIMPLICITY RADIATOR



NEUSTADT SIDE ENTRANCE BODY
BORBEIN DETACHABLE TONNEAU BODY

tions being brief and the mileage between places given. These routes are printed on alternate pages, the intervening ones being used to illustrate scenes along the routes. Following the routes are complete texts of the automobile ordinances of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut. The last part of the book contains miscellaneous information, such as a list of automobile clubs in New England, estimation of horse power, track records, Florida records and a two-page map of New England showing state boundaries and leading places. The book is in pocket size and well bound.

That Imported Decauville Car is the title of an attractive twenty-four page booklet printed in two colors and circulated by the Standard Automobile Co., of New York. Illustrations used include factory and garage views, together with such car parts as the motor transmission, assembled chassis and rear drive. General information on the car is given.

The Locomobile Co., of America, of Bridgeport, Conn., has issued a comprehensive thirty-page catalogue illustrating and describing all of its present gasoline models. The first part is devoted to a general illustration and mechanical description of all principal factors of all the models. Each part of the car is dealt with under a separate heading, and photographs and line drawings are used for illustrating. The remainder contains page views of the cars, with specifications. It is an exceptionally exhaustive catalogue.

TIPS FOR PURCHASERS

Below are suggestions recently given by an English paper to persons intending to purchase automobiles:

Be sure the power is equal to your local hills and requirements.

Be sure of being able to get replacements.

Be sure the car is guaranteed against defective and faulty workmanship.

Be sure the brakes are ample and easily adjusted.

Be sure the form of ignition is reliable and easily attended to. Either the high tension or low tension magneto system is reliable if properly made.

Be sure the lubrication is efficient and positive; too many cars are spoiled through faulty means of lubrication.

Be sure the control levers are placed in a handy position; nothing is more objectionable than to "race" the engine when declutching.

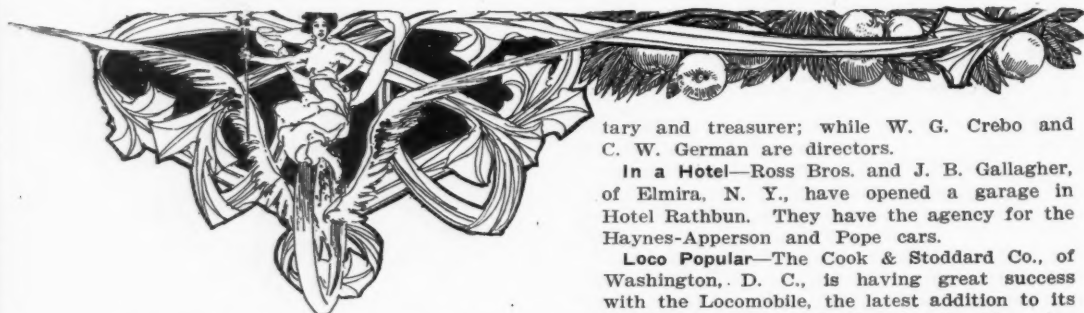
Be sure the clutch is easily adjusted and can be renewed without disturbing the engine.

Be sure the connecting rod bearings can be adjusted without dismantling the engine.

Be sure the back axle is strongly made, and if of the live type the road wheels should, preferably, run on the outer sleeve.

Be sure the engine and gear box are properly protected from the dust.

GOSSIP OF THE GARAGES



National Capital—A new garage has lately been opened in Washington, D. C., by Edwin A. Newman & Co., who will feature the National car.

Bigger Brackett—Larger quarters have been secured by the Brackett Automobile Co., of Manchester, N. H., which will locate at 486 Chestnut street.

Cycles Pushed Back—The Lucia Cycle Co., of Green Bay, Wis., is having its store rearranged in order to make room for handling automobiles and motor boats.

Haynes and Elmore—The Haynes-Apperson and Elmore cars will be handled in Boston, Mass., by E. S. Breed, who is located at 41 Columbus avenue.

Take on Motors—C. L. Jones & Co., of Hastings, Neb., have decided to go into the automobile business and will soon arrange a part of their store to be used as a salesroom.

Goodyear's Coast Agent—The Pacific coast agency of the Goodyear Tire and Rubber Co., of Akron, O., is now under the management of W. D. Newerf, who has located his store at 932 South Main street, Los Angeles, Cal.

Swellest in Town—Eugene Sawyer, of Asheville, N. C., is having built a garage which will occupy a space 90 by 30 feet and will be made of granite brick. According to local advice the new building will be one of the finest in the town.

Olds in Ottumwa—Dr. A. C. Lee and J. F. Kerfoot, of Ottumwa, Iowa, have formed a company which has been incorporated with a capital stock of \$5,000. The Oldsmobile is handled by the new concern, which is located at 127 West Second street.

Five Cars and a Tire—The Benvin Automobile Co. was recently organized in Allentown, Pa., by W. F. Wink and J. D. Reber, two local mechanical men. It is reported the company sells the Cadillac, Knox, Olds, Elmore and Peerless, and the Swinehart solid clincher automobile tire.

Small City, Big Trade—O. H. Dietrich, the principal automobile and accessories dealer in Allentown, Pa., handles the Winton, Franklin and Cadillac. Last year he acted as agent for the last two named. He says that the outlook is good and reports quite a large number of sales for a town of the size of Allentown.

Full House—The National Automobile Co., of Washington, D. C., has arranged to handle the Buick, its full line now consisting of the Packard, Buick, Orient, Oldsmobile and Studebaker. William Jose, formerly a southern traveling representative of the Pope Mfg. Co., is now connected with the National Automobile Co. Mr. Jose, a native of Washington, was formerly well known in the bicycle game.

Made Good Profit—At the annual meeting last week of the Pennsylvania Electric Vehicle Co., of Philadelphia, Herbert Lloyd, J. R. Williams, Frank C. Lewin, A. B. Stoughton, Henry G. Morris, Pedro G. Salon and Justus B. Entz were re-elected directors. The annual report shows a gross income of \$35,808, and expenses (including taxation and depreciation) of \$23,499, leaving a net profit of \$12,309.

Muddy Stream Garage—The Missouri Valley Motor Co., of Kansas City, Mo., was incorporated recently with a capital of \$50,000. A garage 100 by 130 feet is being built for the company at 1112 and 1114 East Fifteenth street and when completed will be one of the finest automobile stations in the west. Winfield Denton is president of the enterprise; W. B. Doddridge, vice president; P. B. Doddridge, secre-

tary and treasurer; while W. G. Crebo and C. W. German are directors.

In a Hotel—Ross Bros. and J. B. Gallagher, of Elmira, N. Y., have opened a garage in Hotel Rathbun. They have the agency for the Haynes-Apperson and Pope cars.

Loco Popular—The Cook & Stoddard Co., of Washington, D. C., is having great success with the Locomobile, the latest addition to its big line of cars. It also handles the Champion trucks.

Reo Joins the Circus—Mlle. de Thiers, heroine of the loop-the-gap-in-an-auto feature at this year's Barnum & Bailey circus, makes her entrance and drives around the arena in a Reo touring car.

Sold Out—The Johnson & Landis garage, in Decatur, Ill., has changed hands, being now owned by Edward Keller and Floyd Needham, who have taken the name of Keller-Needham Automobile Co.

Hotel Garage—The Bellevue-Stratford hotel, of Philadelphia, Pa., is reported as building a \$40,000 garage on a lot 20 by 160 feet adjacent to it. The garage will have a large repair shop and charging plant.

Printing Press Makers—R. E. Martin, E. B. Mentis and W. J. Burt, formerly connected with the Harris Automatic Press Co., of Niles, O., have left for Los Angeles, Cal., where they will open a garage and repair shop.

Gale and Queen—D. C. Methven, of Salina, Kas., has the exclusive state agency of the Gale, made by the Western Tool Works, of Galesburg, Ill., and of the Queen, made by the C. H. Blomstrom Motor Co., of Detroit.

The Oak Park Machine Co. was recently organized in Oak Park, a suburb of Chicago. The building occupied by the company is 150 by 40 feet and a large number of cars can be taken care of. The garage includes a large, well equipped repair shop.

Parts of Brooklyn—An automobile parts supply house is one of the most recent additions to the automobile business colony of Brooklyn, N. Y. The new concern is known as the Weston Auto Supply Co., and has headquarters in the Grant Square garage, 1378 Bedford avenue.

Wallie's Brother Bill—"Bill" Sanger, a brother of Walter Sanger, of bicycle fame, and himself identified with the bicycle business up to the time the bottom dropped out of it, will be manager of the salesrooms and garage which the Franklin Automobile Co. will open on Third street, Milwaukee.

Want Montana Agent—The State Novelty Works is the name of a new concern recently organized in Helena, Mont., by William L. Swendeman, formerly with the Battle Creek Cycle Co., of Battle Creek, Mich. The new concern will deal in automobiles, motor cycles and accessories and has secured the local agency of the Rambler. Mr. Swendeman would like to

NEW INCORPORATIONS



New York, N. Y.—Multiplex Power Co., capital \$1,000; to make motors. Incorporators H. Hollman, C. Welk and L. Storck.

Boston, Mass.—Autobed Co., capital \$50,000; to make the motor car racks. Incorporators H. P. Sweester and L. L. High.

Hanover, Pa.—Hanover Automobile Co., capital \$10,000. Incorporators Charles H. Heindel, F. E. Heindel and W. F. Kintzing.

New Orleans, La.—Motor Co., Ltd., capital \$25,000; to make motor cars, motors and parts. Incorporators Bishop C. Perkins, William P. Lusk and Thomas S. Witherspoon.

Columbus, O.—Uneedme Tool Co., capital \$5,000; to make automobile tools. Incorporators Joseph Schonthal, E. M. Taylor, M. M. Phenice, C. A. MacCauley and C. A. Howell.

handle a few other cars and accessories which have not been introduced in that section of Montana.

Queen Visits Allegheny—The Allegheny Automobile Co. now has a large garage at 711 Jackson street, Allegheny, Pa., where it handles the Queen.

Yale on Broadway—Frank A. Sanford has opened a New York agency for the Yale at 1653 Broadway with a well equipped and spacious salesroom.

Duerr Adds Pungs-Finch—C. A. Duerr & Co., of New York, have added the Pungs-Finch cars to their line, which also embraces the Royal, the Queen and Mitchell.

John Goes Uptown—John Wanamaker is to open a New York uptown salesroom for the Ford in the Old Guard building at the corner of Broadway and Forty-ninth street.

Knox in Washington—The Maryland Automobile Co., of Baltimore, selling agent in this territory of the "waterless" Knox, has opened a Washington office at 1319 L street, N. W.

Not Ordinary Garage—"The Auto Mart" is the title of a garage recently opened at Seventh avenue and Thirty-seventh street, New York, for a storage and rental business. J. D. Conover is manager.

Cadillac in Clothing Business—Browning, King & Co., of New York, have placed with the Metropolitan agent orders for an equipment of Cadillac delivery wagons for each of their sixteen branch stores.

Darracq and Ariel—Ralph Lewis, of the Automobile Exchange, Stanhope street, Boston, has secured the Boston agency of Darracq cars, which he is to handle in connection with the Ariel, the latter a Boston product.

Canary with E. V. Co.—Dan Canary has severed his connection with the William Herrick Co., the Chicago agents of the Peerless and Orient cars, and is now with the Chicago branch of the Electric Vehicle Co., at 1413 Michigan avenue.

New York Ormond Branch—The United Motor and Vehicle Co., of Boston, is to open a New York branch for the Ormond. R. A. Farwell, vice-president and general manager, is in search of a site for a salesroom. His present address is 150 Nassau street.

Rainier's First Touring Car—The Rainier Co., selling agent of the Vehicle Equipment Co., has received from Toledo the first of the new Rainier cars. The Rainier is a 4-cylinder, 22-28-horsepower touring car built on European lines. Its price has been set at \$3,750.

Pierce at Premium—The Banker Bros. Co., of Pittsburg, has sold all the Pierce cars it ordered from the factory early in the season, and is now trying to get cars from other dealers by offering a bonus. The sale in Pittsburg of Pierce cars alone thus far amounts to over \$100,000.

Boston Wants Many Cars—A. E. Morrison, of the Peerless Boston branch, has spent the time since the Boston show at the factory in Cleveland, endeavoring to secure an increase in the number of cars to be sent to Boston this season. Also after the show Jewel Dowling, of Dowling & Maguire, went to Buffalo to arrange to take all the Pierce machines he could get.

Diaphragm Tooter—A. L. McMurty, of New York, of timing apparatus fame, has invented and patented a mechanical horn, whose principle is the vibration of a diaphragm producing a noise similar to that emitted by the present rubber bulb horn. The horn is operated by a connection with the mechanism of the car and is set to tooting by the mere pressure of a button on the steering wheel.

Demand for Big Cars—A feature of the automobile trade in Pittsburg this season is the demand for heavy touring cars. Three years ago there was hardly a touring car in the city. Last year the long trips made by local automobilists to all parts of the country kindled a touring enthusiasm that is causing brisk sale of large cars this spring. Several trips are already planned over the mountains.

Wayne in Metropolis—A New York agency of the Wayne has been established at 1657 Broadway by a concern which is to be incorporated under the title of the Wayne Automobile Co. of New York. A. L. Kull, a veteran in the retail trade, formerly of New York, but more recently of the Wayne Automobile Co., of Washington, D. C., connection with which he also retains, is one of its promoters.

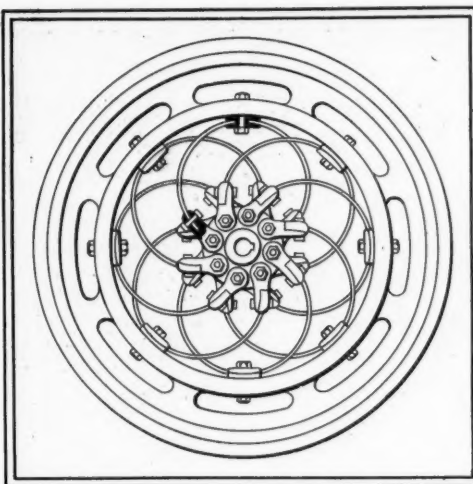
CURRENT

Letters patent No. 785,081, dated March 21; to Louis H. Brinkman, of West Hartford, Conn.—In a radiator, an upper and lower water chamber are connected by a series of pipes bent into serpentine convolutions. A series of radiating plates extends from the upper to the lower water chambers, the plates having their ends attached thereto and having a series of openings for the pipes, while annular flanges integral with the plates enclose the pipes.

Letters patent No. 785,120, dated March 21; to Milton O. Reeves, of Columbus, Ind.—In a roller bearing the inventor uses a containing annulus with a continuous concave track in its inner surface. A spacing spider, sleeved within the annulus, has the rollers arranged in it so the outer convex ends contact progressively with the entire length of the concave track. The rollers have their parallel peripheries and ends adapted to engage the annulus with at least two points of contact upon opposite sides of the axis of each roller.

Letters patent No. 785,118, dated March 21; to Charles A. Petite, of New York, N. Y.—This device consists of a solid tire with a base of sections each with grooved base and sides, and of an elastic tread with lips interlocking in the side grooves of the base sections, the whole tire being held on the felloe of the wheel by cross bolts.

Letters patent No. 785,150, dated March 21; to Charles H. Chapman, of Gorton, Mass.—This



MUNSING'S SPRING WHEEL

by a hexagonal nut. The heads of the bolts give a metal tread and the abutments provide the resiliency.

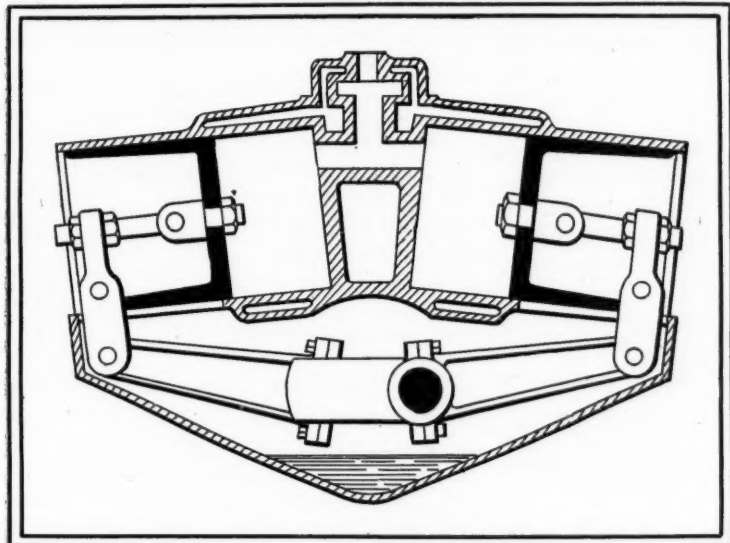
Letters patent No. 785,229, dated March 21; to William C. Risbridger, of Cleveland, O.—In a double-opposed motor the cylinders are placed with their heads together and the walls slightly declined therefrom. One inlet and one exhaust valve placed between the heads serve for both

PATENTS

to Amelle A. Longuemare and Georges Longuemare, of Paris, France—The invention is an apparatus for the automatic regulation of the air supply to a carburetor and consists of a three-way casing with a normally open air inlet at the base, and an auxiliary automatically adjustable air inlet at the left side, with a valve therein. At the top is another opening with a conical valve normally held shut by a spring adjustable by a set screw. A central passage leads to the mixing chamber, this passage being of larger diameter than the open air inlet at the bottom.

Letters patent No. 785,684, dated March 21; to Edwin A. Rutenber, of Logansport, Ind.—The invention consists in a combined induction and exhaust pipe group for a multiple-cylinder motor in which the inlet and exhaust valves are in ports on the same side of the motor. The induction and exhaust connection comprises any number of exhaust legs and a similar number of inlet hoods formed in one piece and held to the cylinder castings by an equal number of bolts or screws placed between the exhaust leg and the inlet hood in each cylinder. The group is removable bodily.

Letters patent No. 785,633, dated March 21; to James M. Padgett, of Topeka, Kan.—The device is a tire vulcanizer that can be carried in the tool box and used for effecting repairs on the road. The vulcanizer body is secured to the tire by a central hooked arm passing around the

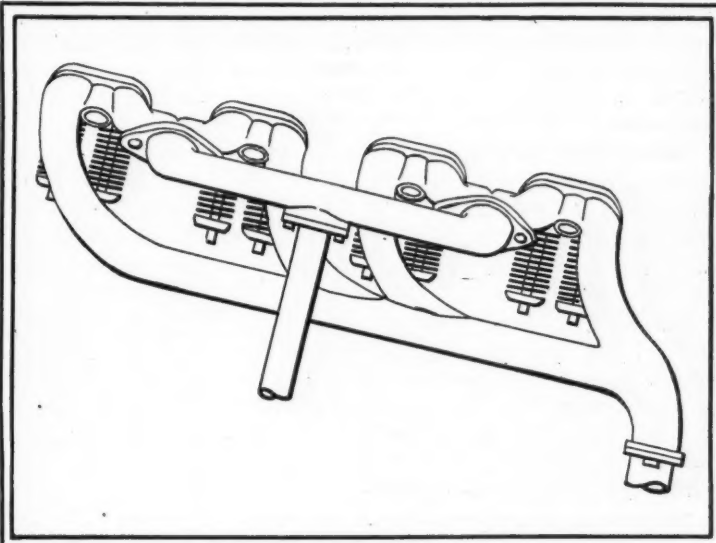


RISBRIDGER'S OPPOSED MOTOR

ball bearing retainer has two sheet metal pieces between which the balls are arranged. In each piece are sockets for retaining the balls in place and alternated with these sockets are tubular cross pieces that hold the separating balls. The ball sockets and the separator sockets are so arranged that the center of each spacing ball will at all times be in alignment with the centers of the adjacent bearing balls.

Letters patent No. 785,166, dated March 21; to Frederick A. Haselwander, of Mannheim, Germany—In connection with the piston and cylinder of an explosive engine is a small chamber connected by a pipe with the cylinder at a point beyond the farthest point reached by the piston during compression. The small chamber is arranged to remain at all times at the working temperature of the engine, and in the connecting pipe is a non-return valve. Arrangements are made so that the gases are fed into the chamber at the highest explosion pressure, while there is an outlet pipe from the chamber so as to spray the combustible gases into the cylinder at a time when the pressure therein is very low.

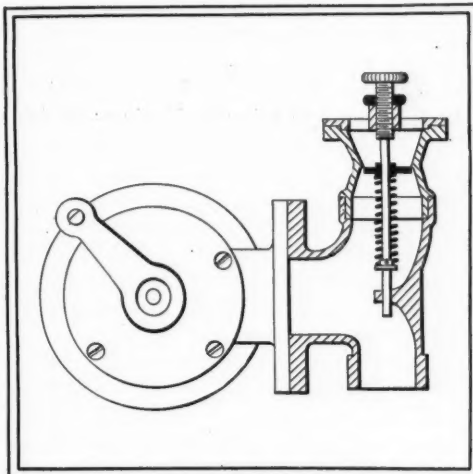
Letters patent No. 785,170, dated March 21; to Henry de Forest Hubbard, of Avalon, Pa.—In his solid tire for wheels the inventor uses a metallic rim with two peripheral rows of alternating abutment-receiving cavities. In each of these is placed a resilient abutment of rubber or other material. Each abutment is held in place by a central bolt with a large metallic head covering the top of the abutment; the bolt after passing through the rim and felloe, being held in place



RUTENBER'S VALVE AND PIPE GROUP

cylinders. The crank shaft is centrally placed beneath the heads and is connected by rods that are beneath the cylinder walls and work parallel thereto. On each piston is a short central rod that is joined to the connecting rod by a rigid arm, the cylinder wall being provided with a slot to allow for the movement of this arm. The object of the arrangement is to have a single central combustion chamber for the two cylinders.

Letters patent No. 785,622, dated March 21;

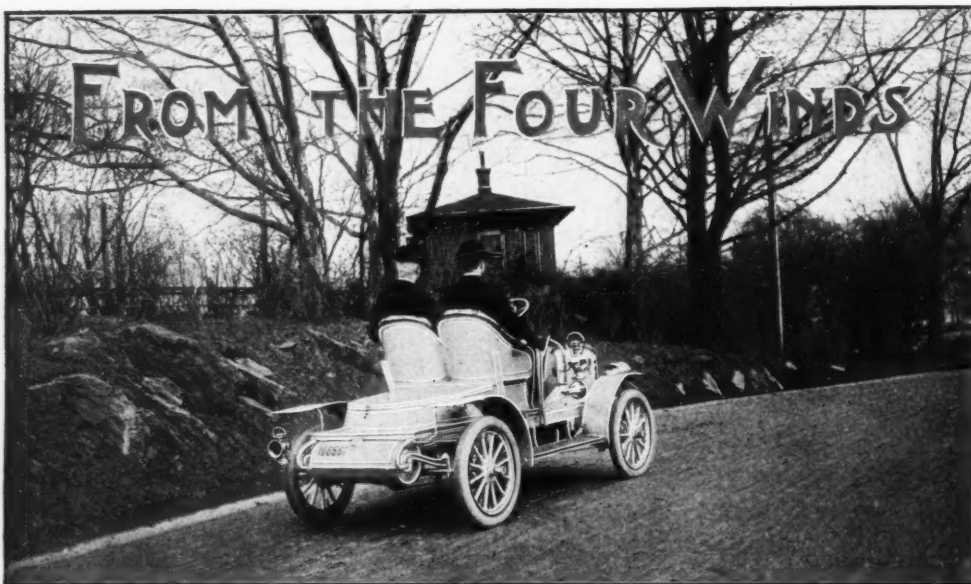


LONGUEMARE CARBURETOR AIR INLET

felloe. In the base of the vulcanizer is a heating plant and near the top a thermometer.

Letters patent No. 785,428, dated March 21; to Agustin M. Milson, of Paris, France—In a governor for explosive engines a piston attached to a prolongation of the inlet valve stem works in a vacuum cylinder. Connected with the cylinder and extending above it is a perforated tube over which is slipped a closely fitting tube, the latter being connected with the same lever which operates the valve. The plunger rod actuated by the cam movement is made with two telescopic sections, separated by a retaining spring.

Letters patent No. 785,108, dated March 21; to James Kearns, of Defiance, O.—This invention is an automatic exhaust valve for explosive engines in which the valve is actuated by an auxiliary exhaust passage controlled by the piston in the engine cylinder. The inlet valve is placed in the head of a cylindrical port in the center of the piston head. Passing transversely through this port is the stem of the exhaust valve, the valve forming a part of the port wall. In conjunction with the extended end of the exhaust valve stem is a hinged valve controlling the final emission of the exhaust to the muffler, this valve also being in passage of auxiliary exhaust. The pressure of the exhaust from the auxiliary valve opens the valve to the muffler pipe, and the opening of this valve also opens the exhaust valve in the port in the cylinder head. As soon as the suction stroke commences a spring holding the exhaust valve on its seat comes into operation and closes the exhaust valve.



WINTER WINTON RUNABOUTING IN CENTRAL PARK, NEW YORK

Lowell Motor Population—According to recent advice from Lowell, Mass., there are now 141 motor cars registered in the Massachusetts town.

Warner Lectures on Gears—H. L. Warner, of the Warner Gear Co., of Muncie, Ind., gave a lecture at the automobile school of the Y. M. C. A. of Dayton, O., a few days ago, on gears and transmissions.

During Busy Season—The annual automobile and motor boat races at Blackpool, England, are scheduled for July 27, 28 and 29. Some manufacturers complain that the meet will be held at a time when they are too busy to attend to races.

Educating Future Workmen—Thomas B. Jeffery, the Rambler manufacturer of Kenosha, Wis., has advised the board of education of that city that he will furnish all the necessary tools and materials for a manual training school if the local board furnishes the building and teachers.

Motor Cycle Race Teams—The three Griffon motor cycles which will start in the French eliminating race for the international motor cycle cup race, are to be ridden by Demester, Lamberjack and Buquet; the three Peugeots by Cissac, Champoiseau and Giuppone, and the three Alcyons by Anzani, Tavernaux and Griet. The drivers of the Buchet and Stimula machines have not yet been selected.

Skates, Cycle, Motor—One more of the great skating and bicycle riders of the northwest is to enter the racing game on the automobile track. Harley Davidson of St. Paul, at present one of the foremost skaters in the country, and former bicycle racer, is to follow John S. Johnson into the automobile field. He is at present negotiating with an eastern factory for a place on the racing circuit.

Fast Motor Stage—A Philadelphia company which is in process of formation, hopes to establish ere the glorious Fourth a daily automobile line between the Quaker city and the City-by-the-Sea. The idea is at first to start one large fast car from the new Bellevue-Stratford, in Philadelphia, in the morning, a similar vehicle starting at the same hour from the Rudolf, in Atlantic City, this service to be continued throughout the season. If the scheme prove popular, the idea is to increase the number of vehicles as required. Under ordinary conditions the run can now be made

in any old kind of runabout in less than 5 hours. In the specially designed, powerful cars a 4-hour schedule could easily be maintained.

Plain Clothes Motor Cops—The New York police are now sending out motor cycle cops in plain clothes to watch for scorchers. One of Peter Fogarty's pilots fell into the trap last week.

Planning for Glidden Trophy Tour—It is said to be planned to send off the Glidden trophy tourists in separate parties in different days with appointed plans of rendezvous in the various sections of the country chosen by them to cover.

London to Edinburgh—J. W. Stocks, the English motorist, recently drove a 15-horsepower de Dion-Bouton car from London to Edinburgh, a distance of 402 miles, in 19 hours 30 minutes, actual running time. The roads were in fair condition in some sections of the country while in others they were covered with snow and ice.

Plan Mountain Climb—Two motorists of Los Angeles, Cal., C. P. King and F. B. Fenner, intend to ascend Old Baldy mountain in an automobile. This mountain is one of the highest in that part of the state and not long ago these motorists succeeded in driving 6,000 feet up it, although it has grades from 12 to 25 per cent. The route to be followed leads from Los Angeles to Fernando, thence over the Newhall grade to Soledad Canyon to Palmdale and Big Rock Creek, where the most difficult part of the climbs starts.

Fined Twice But "Got There"—A tenor of the Paris opera house company recently went to Rouen to sing at a matinee. He had to be back in Paris to take the leading part in the evening performance, which was to start at 8 o'clock. After the matinee, when he went to take the train, he was informed that it was 3 hours late and that he could not make the 100-mile journey per railway in time to reach Paris by 8 o'clock. He then hired an automobile and started for Nantes, where he expected to take a fast train for Paris. Before arriving in Nantes he was stopped by a policeman, and by the time he was through with a visit at the police station, he had missed connection with the train. He then started again in the motor car for Paris, and arrived there in time, the double bill of the

evening having been reversed to bring his appearance later than regularly. His fine at the rural police station was repeated by a few hundred per cent by the manager.

Pope-Toledo Baseball—The Pope Motor Car Co., of Toledo, O., has put a baseball team into the field to compete for honors during the coming season. Its uniforms are blue with white trimmings. C. W. Shepler will captain the nine.

Motor-Roping, the Latest—W. W. Billingham, a bucking broncho rider and steer roper, is giving exhibitions of roping steers while in an automobile. The crowds in Fort Worth, Tex., where the show was recently given, seemed to like the sport immensely.

Cars for Drummers—A large western jobbing house is reported to have placed an order for twelve Reliance cars with the Reliance Motor Co., of Detroit, Mich., the cars being intended for twelve salesmen who heretofore traveled by railroad over a large territory.

Clean-up for Peugeots—A motor cycle race for the Toscane cup was run in Florence, Italy, March 12. In the first heat, for machines of not over 2½-horsepower, a Peugeot won, covering 1 kilometer, flying start, in 54 seconds. In the second heat, for more powerful machines, a 12-horsepower Peugeot won in 30 seconds.

Buses in Hill Climb—The seventh annual Gaillon hill climbing contest for touring cars and racers will be held October 15. A feature of this year's event is that upon the request of the governor of the state in which Gaillon is located it has been decided to add a class for omnibuses. The governor stated that there was a demand for buses in his territory, and that it would be a good opportunity to demonstrate the qualities of these cars.

Mean Street Car—A Cadillac delivery car, which has been in constant use between Minneapolis and St. Paul by the Donaldson company of Minneapolis, was completely demolished in a collision with an interurban street car last Friday night. The car was returning from St. Paul, and suffered a slight breakdown between the two cities. While standing across the track it was struck by a belated street car, and was converted into the choicest pile of kindling wood to be found anywhere thereabouts.

Ostend Race Tournament—The annual meeting at Ostend, Belgium, is to be held from July 9 to 15. On the first day the cars will be weighed; on the second day a 75 miles road race for touring cars will be run; while a 10-kilometer flying start speed contest for touring cars is scheduled for July 11. The kilometer flying start contest for racers will take place July 12, and the mile standing start contest, also for racers, on the following day. Various competitions for touring cars will be held on the driving park track July 14, and on the last day there will be a public show of all the cars that take part in the various events. On Sunday, July 16, those who desire will start on a run to Antwerp, where the world's bicycle championships will be decided. On Monday there will be a run to Scheveningue, Holland.



MAKING THE HIGHWAYS DUSTLESS

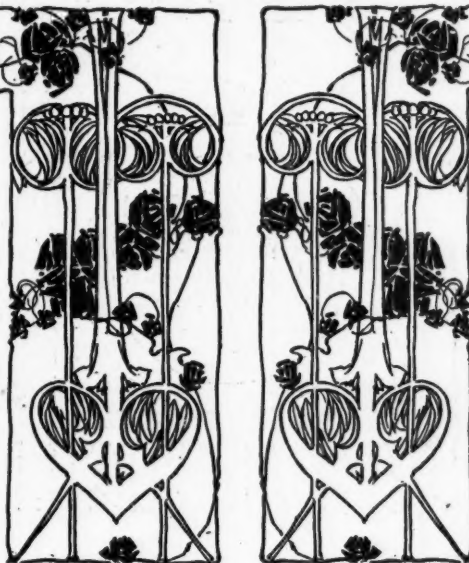
One of the serious problems with which automobilists as road users must deal is dust raising. The question most concerns suburban districts where cars traveling at fast speeds raise dust clouds that are most disagreeable to residents as well as being destructive of the value of property along such routes and a continued nuisance to the motorists. It is in road and track racing that the dust nuisance has more directly concerned automobilists themselves. Accidents have on not a few occasions resulted from dust clouds and contesting cars have been sometimes hidden from the spectators.

As a temporary remedy for dust raising water has been used for ages, but its use necessitates applications every 2 or 3 hours and the effect of water on the road is any thing but good. Each application or sprinkling softens the top portion of the road bed, rendering it easier for the wheels to loosen more of the road material, and as water evaporates very readily, the amount of dust constantly accumulating is increased by each additional sprinkling. Water lacks the first and most essential quality of a dust remedy—permanent adhesion. What is needed is some substance of a viscous nature that will bind the small stones and clay or sand particles together in the form of a cemented mass.

Numerous temporary remedies or palliatives, as they are called, have been placed on the market, many of which have proven useful for short periods, but the cost of which bars their constant use. The use of petroleum is accompanied with a pungent and long-continuing odor; tar must be applied when hot and has to be spread with brooms or brushes, making it very slow of application, while in wet weather the surface is too slippery for use except on level places. A compound that has given good service for roads is westrumite, consisting of petroleum, ammonia and other chemicals. Westrumite, invented in Germany and introduced a few years ago, has been used in the cases of several continental road races, as well as on many city roads where automobiles comprise but a small percentage of the traffic, and in all cases the results following its use have been commendable.

It is mixed with water in the ordinary road sprinkler, a 10-per cent mixture being used, and the road sprinkled to the extent of 2 pints to the square yard. For the first application ten parts of westrumite are added to ninety parts of water. Generally two such sprinklings should be used within a period of 2 days. When a road is treated for the first time a greater quantity is needed to act upon the great amount of loose earth and small stones on the road. Where the road sprinkled is of usual gravel or flinty formation and the traffic is reasonably heavy, these sprinklings will suffice for 2 weeks, when a 5 per cent solution should be applied. After this 2 or 2½ per cent solutions may be used every 2 or 3 weeks. Where westrumite has been used it is shown that sprinkling by water is not needed during the intervals between "Westrumiting."

Westrumite, a dark colored semi-liquid substance, with petroleum and ammonia as its chief constituents, contains other substances



which do not dissolve in water, but, rather, are converted into a soluble emulsion-like condition by the use of ammonia. The ammonia evaporates readily, leaving the remaining constituents insoluble, and forming a sticky substances which will adhere to the tires of vehicles driven over it within a period of 2 or 3 hours after application. The sticky substance forms itself around the small stones, sand and gravel, and cements all into one firm mass that requires weeks to disintegrate, and which is insoluble in any quantity of continued rain or dampness.

Several tests have been conducted to discover its solubility in water. One of these tests consisted in coating four boards with different strengths of westrumite. Two were covered with pure solution and two with a 10-per cent solution. These boards were then exposed to the atmosphere until well dried, before being immersed in water for 8 days, at the end of which time it was apparent that none of the boards had lost any of the substance by solution. Stones have been coated with weak solutions and kept in constant motion beneath water without any apparent loss of westrumite.

It must not be deducted from these tests that westrumite acts as a permanent cement. It is as applied, a very slow evaporating viscous liquid. The ammonia is first to evaporate, then follows the water, and, as time passes, the stones and dirt particles are broken apart and a gradual disintegration of these smaller particles ensues. However, even after this disintegration, the advantages of westrumite are apparent, the dust being much heavier and for some time not rising higher than the axles of a car before sinking rapidly again to the road. Several cases are on record where results of two or three applications were distinctly noticeable 4 months afterwards.

Each application is accompanied by a disagreeable odor lasting a day or two. This odor is, however, not nearly so bad as that emitted by crude oil or petroleum. Westrumite acts as a disinfectant along the line of use and,

it is said, one or two physicians have, upon examination, found that it has acted as a preventative of disease in summer time. Trees along the road sprinkled with it are but slightly injured, and appear green as contrasted with the gray look of those along roads where the dust is given free sway. Owing to its non-freezing nature it may be successfully used in winter when dust is often most disagreeable, and when, because of the ice that would result, water cannot be used.

The cost of it appeals strongly to all concerned in its use. At present the duty on it is not specified, but placing it at a guess at 25 per cent, the cost per mile for a 10 per cent application would be \$75; for a 5-per cent application, \$35; and for a 2½-per cent dose about \$15. It sells at approximately \$62.50 per ton.

In ordinary street sprinkling a square yard of street requires .192 gallons of water. A mile of street 24 feet between the curbs contains 14,080 square yards, which would mean 2,703.36 gallons per mile. Counting 10 per cent of this mixture as westrumite, 270 gallons per mile are needed. Country roads having two 10-per cent applications at the start require 5 per cent applications every 3 or 4 weeks afterwards.

Regarding the relative cost of sprinkling a road with westrumite and water it is difficult to arrive at accurate calculations owing to the widely differing costs of sprinkling, the number of times water must be applied, the amount of traffic and the nature of the road surface. Some city roads are sprinkled for 132 days each year with applications following each other each 4 or 5 hours, meaning on an average 2¼ applications daily, or 297 in all. Taking water cost and labor at a fair average it is found that \$275 is needed for each mile of street per season, or at least much more than what westrumiting would cost.

It is advisable to do all sprinkling with westrumite at night, so that 4 or 5 hours may elapse before the road is used. Westrumite is not soluble in water containing large percentages of magnesium and it has been found best to mix soap with the water before adding the westrumite. When being used, the water tank of ordinary build with a fine atomizing sprayer is filled half full of water and the westrumite added. A hydrant is then used to fill the tank, the force of the incoming water being sufficient to thoroughly mix the solution.

The use of westrumite in road construction has been suggested by several civil engineers who have made a study of its nature. In building macadamized roads, broken stone, pebbles, and sand and water are rolled together into a solid mass, which has little permanent binding property; the water evaporates and the different substances separate, those on the surface rising in the form of the dust cloud. By using, say, a 25-per cent solution of westrumite for a mixing liquid, the road material would be given a cemented nature which should result in greater durability as well as less dust. In road construction, the coarser the materials used the stronger must be the westrumite solution. Each surface coating should be treated with weaker solutions,



AMERICAN MOTOR LEAGUE

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THIS LEAGUE

Is Now Collecting Route Information

covering all automobile routes in the important states and will publish road books for motor car users as fast as complete information is received. The A. M. L. is the only organization engaged in this work, and it invites the co-operation of all persons interested. For full information and membership blanks address American Motor League, Vanderbilt Building, New York City.

APPOINTMENTS

The following members have been appointed official consuls for the several places in which they reside: Edward D. Page, Oakland, N. J.; Charles R. Bowersox, Bryan, O.; Louis N. Patenaude, Montreal, Que.; Andrew J. Dawes, Montreal, Que.; R. B. Hamilton, St. Catharines, Ont.; Reade W. Bailey, Pittsburg, Pa.; Archibald U. Campbell, Kalamazoo, Mich.; A. C. Martin, Atlanta, Ga.; John Benham, Chicago, Ill.; D. F. Piazzek, Kansas City, Mo.; Frank A. Hooker, Lansing, Mich.; Dr. E. S. Smith, Macon, Mo.; H. M. Sykes, Evansville, Wis.; E. O. Proctor, Ayer, Mass.; W. D. Brooks, Dartford, Wis.; E. Linn Mathewson, Denver, Colo.; J. A. Newby, New Castle, Ind.; Adelbert Stilson, Spokane, Wash.; D. L. Davis, Salem, Ohio; Percy L. Lang, Waverly, N. Y.; L. W. Gillespie, Marion, Ind.; Dr. A. E. Smith, Olean, N. Y.; A. G. Zimmerman, Madison, Wis.; Frank W. Potter, Springfield, Mass.; J. A. Kline, Harrisburg, Pa.

The following additions have been made to the road committees of the various states:

ILLINOIS COMMITTEE—John Benham, Chicago; Edward DeMoulin, Greenville; J. H. Brooks, Carterville.

CANADIAN COMMITTEE—R. B. Hamilton, St. Catharines.

COLORADO COMMITTEE—E. L. Mathewson, Denver.

CONNECTICUT COMMITTEE—Richard H. Bunce, Middletown.

DISTRICT OF COLUMBIA COMMITTEE—William T. Clerk, Georgetown.

INDIANA COMMITTEE—Charles W. Travis, Evansville; Fred H. Kuhn, Plymouth; J. A. Newby, New Castle.

IOWA COMMITTEE—J. F. Dings, Ottumwa; Martin Ebsen, Clinton.

MASSACHUSETTS COMMITTEE—E. F. Bachelier, Lynn; Dwight M. Billings, Amherst; E. O. Proctor, Ayer.

MICHIGAN COMMITTEE—Archibald U. Campbell, Kalamazoo; Frank A. Hooker, Lansing; William M. Thompson, Jackson.

MISSOURI COMMITTEE—Dr. E. S. Smith, Macon; D. F. Piazzek, Kansas City.

NEW YORK COMMITTEE—D. A. Sanders, Nyack; F. W. Anderson, Albany; Percy L. Lang, Waverly; Albert G. Davis, Schenectady; Dr. A. E. Smith, Olean; E. W. Newton, Cortland; A. S. Noonan, Rome.

OHIO COMMITTEE—Orrin L. Parsons, Springfield; G. G. G. Peckham, Dayton; B. L. Davis, Salem.

PENNSYLVANIA COMMITTEE—Oliver O. Jarard, Mauch Chunk; John B. Coulston, Coudersport; Reade W. Bailey, Pittsburg.

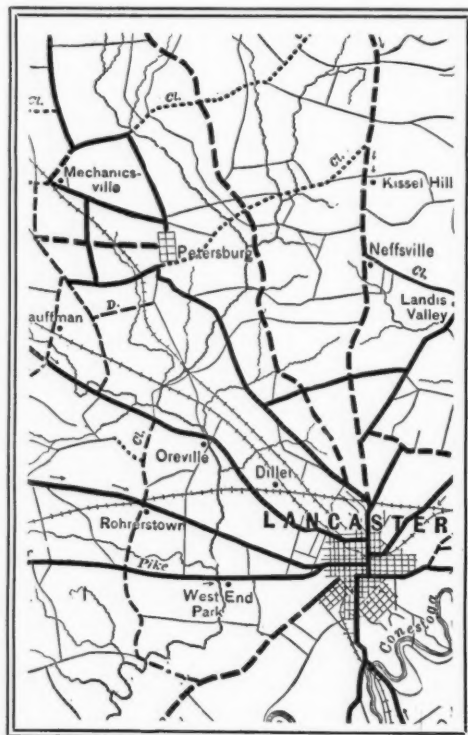
WASHINGTON COMMITTEE—Adelbert Stilson, Spokane.

TO ALL CONSULS

The best season for recruiting is now at hand. What are you doing to build up the organization? Many of you are men of influence and all are men of ability. The league needs your assistance and the organization will grow just in proportion to the amount of effort you put forth in its behalf. The secretary would be glad to hear from you.

TO THE READER

The A. M. L. is an organization with a purpose. It has done much good and is destined to achieve great results in the world of automobiling. Are you a member? Every automobilist of good character may have a place upon the league roll. There is no initiation fee. The annual dues are nominal—\$2.00—send this sum with your name and address to the American Motor League, Vanderbilt building, New York City.



SHOWING HOW TO INDICATE DIFFERENT KINDS OF
ROADS ON MOTOR ROUTE MAPS

HINTS ON MAP MAKING

When a route is described, the description is always clearer and better if accompanied by a map. Local maps can be had in nearly every town and county in the country. They are published by land agents, real estate dealers, map makers, public officials and others, and a fairly good map can generally be had without trouble. When a member—or any automobilist who will aid this work—sets out to prepare route information covering the roads running in different directions from his home town, let him get one of these local maps—as correct as can be found—and mark in heavy black or red lines those roads which are known to be good. If none of the roads are really good, let him mark with heavy broken lines those roads on the map which are commonly used by automobilists and which are the best, or as good as any, between the points connected by these roads. In the same manner the streets of a town should be marked by heavy lines indicating the best paved streets and the streets most frequently used by automobilists in passing through the populous portions of a district.

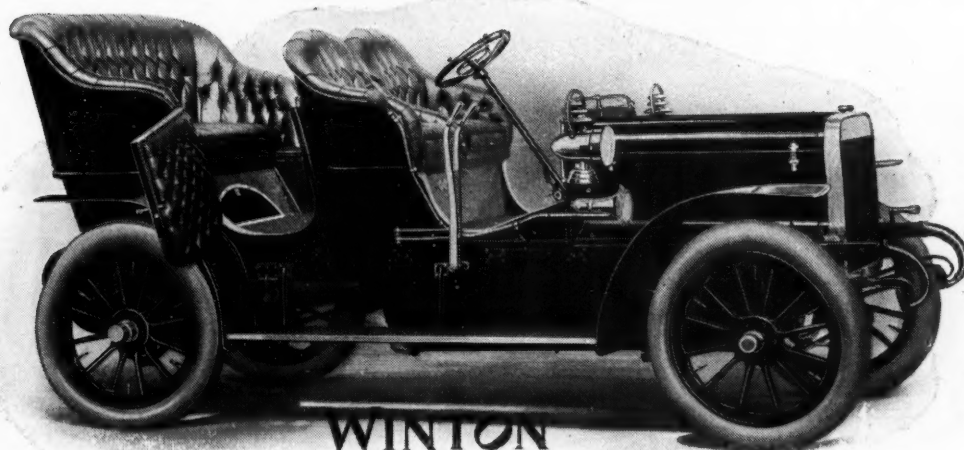
When the streets of a town, city or village are irregular and confusing in their lines and directions, it often helps matters to send a sketch or map on a larger scale showing the streets with the best pavements marked in heavy black or red lines and the names of the streets marked thereon. The maps on this page will indicate what is meant by the suggestions here made. Circulars giving necessary hints and suggestions will be sent out from headquarters to all who will aid the league in getting together this route information.

In any case where a map cannot be obtained it will only be necessary to get a sheet of tracing paper from the nearest stationer and then, with the permission of the nearest land surveyor who is always supplied with local maps, a rough tracing can be made in a short time, showing the best routes in the town and county.

BUTTONS AND CAP PINS

Hand made samples of the new A. M. L. buttons, coat pins and cap pins have been shown at headquarters and are agreed to be handsome. Dies will be completed within the next 10 days and the secretary will then be ready to fill orders. There is also an official watch fob of 14 karat gold, bearing the league emblem in most exquisite design. All members should possess both of these.

WINTON



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Transportation experts know that an overloaded locomotive cannot perform good service. No matter how good it is—it has a **limit**. And if that **limit** is not observed, the fast train becomes a slow train.

Same reasoning applies to motor cars. A six-passenger body on a three-passenger motor means failure. The combination ruins the motor. The **limit** must be observed.

If anybody offers you a car with a big body, at a small price, don't be misled. Look at the engine. He isn't a philanthropist—either he is ignorant of the **limit**, or he thinks you are.

The right way is to get the size of body you want, with the size of motor that body must have, and to pay a proper price.

WINTON bodies are made in sizes proportionate to the motor power. We know where the **limit** is, and don't try to crowd it. So, when you buy a WINTON, you get a motor that will carry its load, anywhere—uphill or down. A motor that will finish the season practically as good, and strong, and serviceable, as when purchased.

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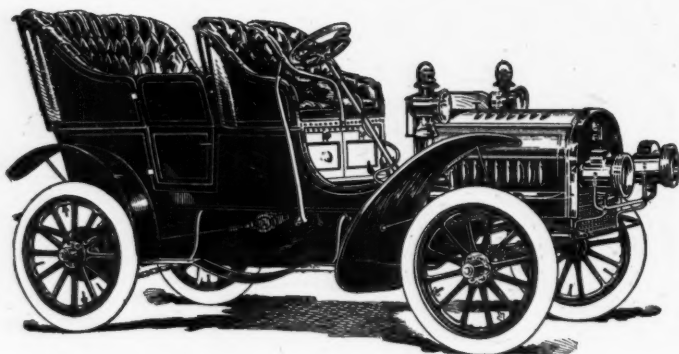
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It will carry you over country roads as fast as you wish to go—faster than the law will allow. Besides all needed power it has exceptional road clearance and every provision for safety, reliability and ease of control.

The brakes are operated by pedals, not by levers. The steering wheel and throttle, attached to it, are operable by one hand, so that the other is always free to manage the clutches by the single lever, and no confusion is possible. The time of the explosion of the mixture is controlled by an automatic governor at exactly the proper moment at all speeds of the engine at which to obtain the best results, and is far superior to any method of hand timing yet practiced. The coming season will be the fourth it has been used, and while experimenting has continued, its superior has yet to be developed.

The working parts are readily accessible, and so simple that adjustments can be made without the help of a mechanic. It is never necessary to crawl under the machine.

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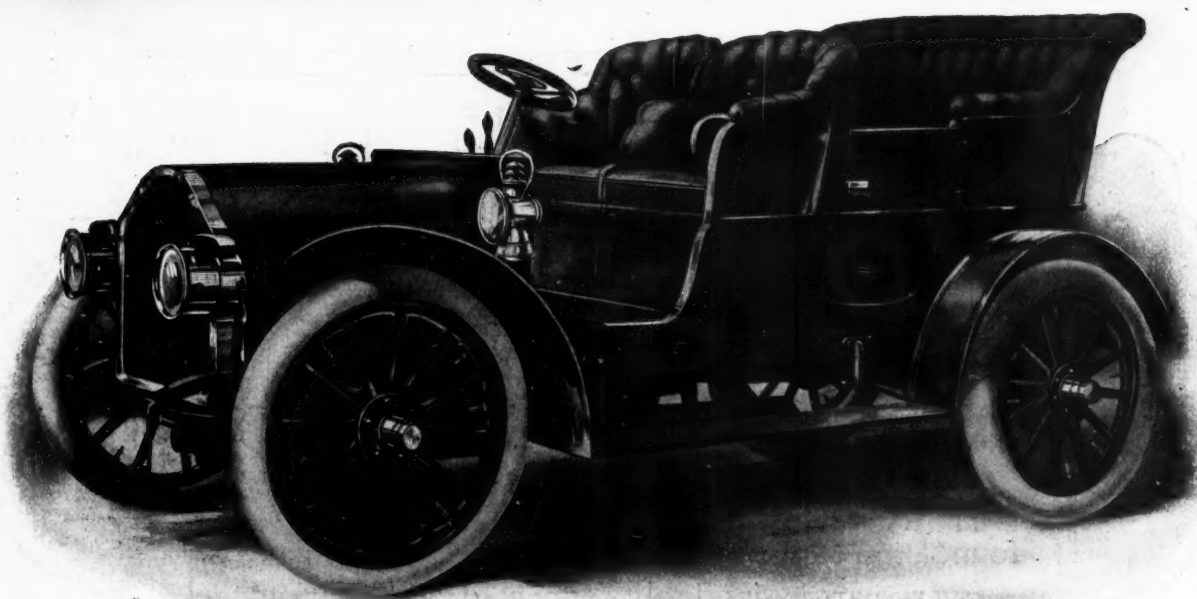
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The intention of this Company was to equal in appearance anything Europe could send over, and build a line of cars that mechanically would be better suited to American conditions than the imported machines.

We built better than we knew—produced what is admittedly the handsomest American car—and with our vertical, four-cylinder, air-cooled engine, threw overboard three hundred and fifty pounds of water, radiators, pumps, pipes and valves.

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The Waltham-Orients will be handled by the strongest chain of dealers selling any one car in America.

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GOODRICH AUTOMOBILE TIRES

EMBODY THE INTEGRAL CONSTRUCTION

The Goodrich Tire is built as a unit from the fabric foundation to the outside of the tread.

Every part indissolubly connected and sharing the working strain with every other part.

The most powerful construction known to tire builders and capable of resisting the greatest amount of *weight, speed, friction and pressure.*

Made and vulcanized entire, thus eliminating all weak points.

Our process requires a *single vulcanization*, which is accomplished by subjecting the tires for a *long time* to a *low degree of heat.* We thus retain the full strength of the fabric, and impart to the rubber a toughness and lasting quality possessed by no other tire.

On account of this extreme toughness, Goodrich Tires seldom require retreading.

New treads, however, can readily be applied to our tires. All branches fully equipped to do this character of work to the highest degree of perfection. Absolute satisfaction guaranteed.

The Bailey "Won't Slip" Tire. Regular Goodrich construction, but provided with the Bailey "Won't Slip" Tread. Prevents slipping, slewing or skidding.



Rims branded in the channel with this copy-righted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

THE B. F. GOODRICH COMPANY, Akron, Ohio

NEW YORK:
66-68 Reade St. and 1625 Broadway

BOSTON:
161 Columbus Ave.

PHILADELPHIA:
909 Arch St.

BUFFALO:
9 W. Huron St.

CLEVELAND:
420 Superior St.

DENVER:
1444 Curtis St.

SAN FRANCISCO:
392 Mission St.

DETROIT:
80 E. Congress St.

LONDON, E. C.:
7 Snow Hill

CHICAGO:
141 Lake St.

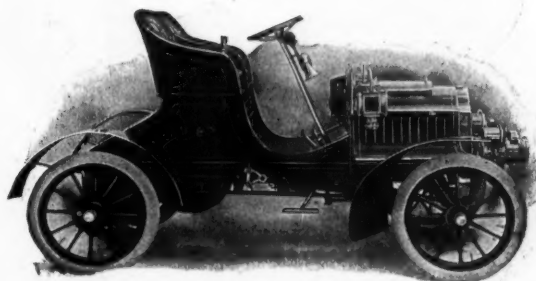


TRADE MARK



TRADE MARK

OLDSMOBILE



Far and away the most popular Runabout of the season is our Touring Runabout at \$750. It has the style, the quality, the dependability you want and have a right to expect. It has the advantages of the more expensive cars without their complications.

It's a revelation to witness the factory tests to which every Oldsmobile is subjected, before being placed on the market. You don't wonder at their accomplishments afterwards. You can understand then what high standards and thorough testing means. You can understand why the Oldsmobile was the only light car awarded a Gold Medal at the St. Louis Exposition—why it was the only American car to take part in the recent Bombay-Delhi, India, endurance trials.

Write for full details and specifications.

Olds Motor Works

1300 Jefferson Avenue

Detroit, Mich., U. S. A.

Member of the Association of Licensed Automobile Manufacturers





Thread Fabric Tires

No Lugs

EASIEST TO HANDLE
NO PINCHED TUBES
NO EDGE CUTTING
NO BLISTERING
MOST DURABLE

So resilient that they save one-fourth the power

We have printed a booklet which tells all about
Thread Fabric Tires. Better send for it.

G & J TIRE CO.
Indianapolis

CHICAGO
429 Wabash Avenue

BOSTON, 43 Columbus Avenue
CLEVELAND, 337 Huron Street

DETROIT
247 Jefferson Avenue



Rims branded in the channel with these copyrighted marks have been inspected and pronounced perfect. We guarantee our tires on all rims so branded.



APPERSON



30-40-50-Horse Power, Four-Cylinder Cars

**Twelve Years of Actual Experience
in Building Gasoline Cars**

**Our Four-cylinder Cars have been tested for
Three Years, and we offer no long list of excuses
called improvements.**

**Our cars have always run well and our cus-
tomers are pleased.**

WRITE FOR OUR LARGE CATALOGUE

**Apperson Bros. Automobile Co.
Kokomo, Indiana**

BRANCHES:

66 West 43d Street, New York

43 Columbus Avenue, Boston

394 Wabash Avenue, Chicago

Members Association Licensed Automobile Manufacturers

A HEART TO HEART TALK

WITH THE LIVE DEALER

WHO IS WILLING TO BE CONVINCED

Reasons why you should secure the Queen agency:

1st. Because we have the most complete line of cars ever offered by any manufacturer—seven (7) different models.

2d. Excellent workmanship throughout, high finish, swell upholstery, powerful motor and popular price makes them natural sellers.

3d. A well pleased customer this year means increased sales in the future; live agents appreciate these facts and are securing territory.

WITH THE PROSPECTIVE BUYER

WHO WANTS ALL THAT HIS MONEY WILL BUY

A few reasons why you should buy a Queen:

1st. Because they have no equal on the market for the price and quality.

2d. They are finely finished throughout, built of the best material, ensuring long life and easy running, simple in construction with ample power for all conditions.

3d. All parts interchangeable insuring you against vexatious delays.

4th. We are granting agencies only to thoroughly responsible parties who will be courteous and attentive to customers.

MODEL "E"

Price \$1,000



QUEEN

C. H. BLOMSTROM MOTOR COMPANY

Chicago Agent: HENRY BRANSTETTER
1466 Michigan Ave.

DETROIT, MICHIGAN

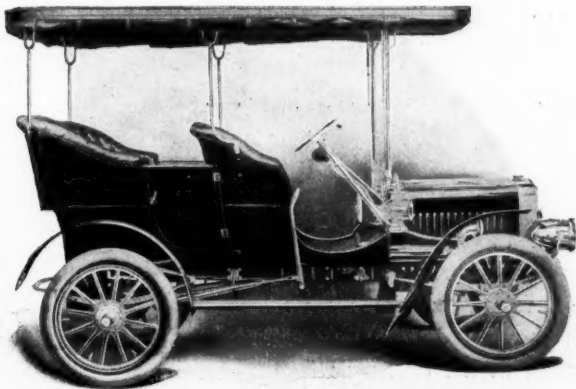
New York Agent: C. A. DUERR & CO., Inc.
Broadway and 58th St., N. Y.

The **BIG FOUR** of the **FORD LINE**



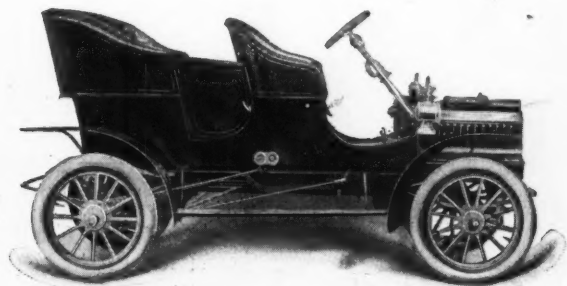
The Popularity of Our Cars

has created a demand for a complete line of Ford Models from which every users individual requirements can be satisfied. Detailed description of these models together with our new catalogue, describing unique Ford features, will be sent on request.



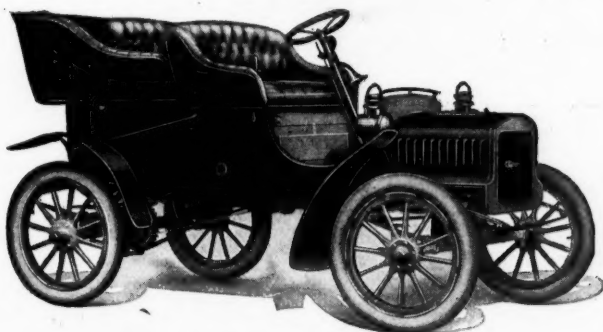
Model C, \$950

Removable rear entrance tonneau, double opposed motor.



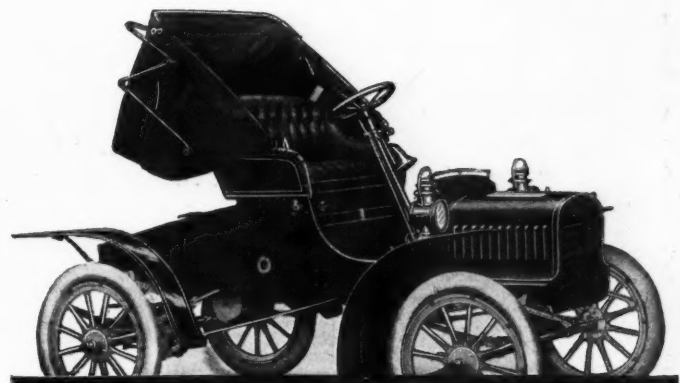
Model F, \$1,200

is a larger and more powerful car than Model C, has the popular Ford double opposed motor, divided front seat, double side entrance tonneau.



Model B, \$2,000

Side entrance tonneau, 4-cylinder vertical motor.



The Doctor's Car, without top, \$850

is especially designed for physicians.

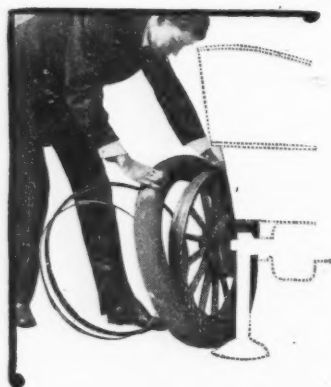
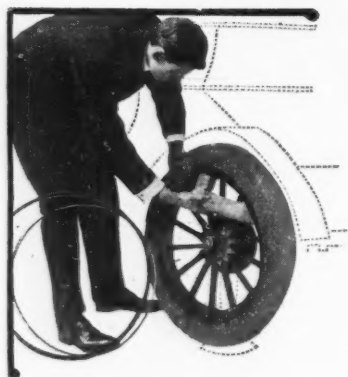
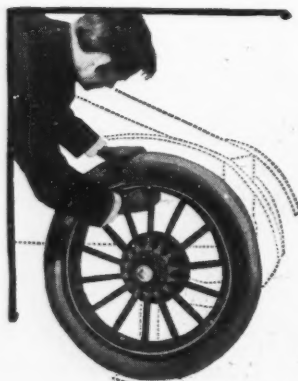
Get a Ford DEMONSTRATION of power in COMPARISON with other cars and see the difference between ACTUAL power and RATED power.

FORD MOTOR CO., Detroit, Mich.

Canadian Trade supplied by The Ford Motor Car Co. of Canada, Ltd., Walkerville, Ont.



A SECTIONAL VIEW



The Greatest Invention of the Century

THE BRYANT RIM

**Solving at last the Dread "Tire Troubles"
of the Automobilist.**

**Unique....Simple....Practical
Safe....Thoroughly Tested**

Sixty seconds will suffice to detach any tire from the Bryant Rim. In placing this new device on the market, we appeal entirely to the good judgment of automobile and tire manufacturers, dealers and drivers and will convince them that the Bryant Rim is mechanically perfect and solves the tire repair problem. If you have ever sat in the driving rain or scorching sun while your chauffeur struggled with an obstinate tire, or if you have ever tried to do the trick yourself, you will appreciate the tremendous comforts of the Bryant Rims. Sixty seconds' work *with your hands only* and the tire is off. Sixty seconds more will suffice to put it on, and you haven't gouged the inner tube or scarfed the bead of the tire with detaching tools. A glance at the illustrations and we believe the principle will be plain to you.

THE BRYANT RIM

Will Fit Any Clincher Tire Now Made.

It is made to standard rim specifications, having an endless removable flange, securely held in position by a broken locking ring adapted to engage the rim channel and the removable flange.

You need not discard your present tires or wheels for a small investment will equip your wheels with Bryant Rims, and your old tires will fit like easy shoes.

WARNING

The Bryant Rim is fully protected by patents, and dealers and users are warned against purchasing infringing devices from unauthorized persons. We have recently entered suit in the United States Courts against a Company which has been displaying and offering for sale an infringement of our patent, and it is needless to say that we will continue this policy of protecting ourselves and our customers from infringers. *Be sure it's "The Bryant."*

The Bryant Steel Wheel & Rim Co.

456 Hayden Bank Bldg., Columbus, O.

THE ROYAL TOURIST

"True Blue"



32-38 H. P.

GUARANTEED

2650 LBS.

\$4,000

Direct Flexible Shaft Drive—Free Driving Axle—Perfect Throttle Control
—Without Mechanical Governor—Positive Automatic Lubrication of Entire
Motor and Transmission—THE GREATEST H. P. FOR WEIGHT OF
CAR AND 5 PASSENGERS.

WRITE DEPT. 2 FOR CATALOG AND NEAREST AGENCY

ROYAL MOTOR CAR CO.

CLEVELAND, OHIO

BE PARTICULAR ABOUT YOUR EQUIPMENT

GET THE BEST MONEY CAN BUY

Phare Continental Motor Lamps

Most Powerful and Handsome Lights Made

ALL DEALERS SELL THEM

A. B. C.

Phare Continental



No. 200

List Price, \$30.00

Length, 9 inches.
Diameter of Door, 10½ inches.
Mirror Lens Reflector, 5 inches.

Very exclusive; designed for large cars. Will give powerful light; made of heavy brass, highly polished.

Also made with Bull's Eye with Metal Reflector.

No. 200 A

List Price, \$30.00

FIRE BALL

Phare Continental



No. 202

List Price, \$30.00

The most exclusive and unique high grade lamp. A wonder of manufacture, spun into ball shape, of one piece of heavy gauge brass, highly polished, no seams to come open, easy to be cleaned; will project very strong powerful light.

TORPEDO

Phare Continental



No. 201

List Price, \$20.00

Length, 11 inches.
Diameter of Door, 8 inches.
Mirror Lens Reflector, 5 inches.

Made of heavy gauge brass, body spun of one piece; will project a powerful light. Door with broad Rim gives handsome effect.

"POLITA"

Phare Continental



No. 17 A

List Price, \$7.00

Rear Signal Lamp. White light in front, red jewel on side.

A LIBERAL DISCOUNT TO THE TRADE

THE MOTOR CAR EQUIPMENT COMPANY

IMPORTERS AND MANUFACTURERS

43 CORTLANDT STREET, NEW YORK

BRANCH AT 1645-1647 BROADWAY

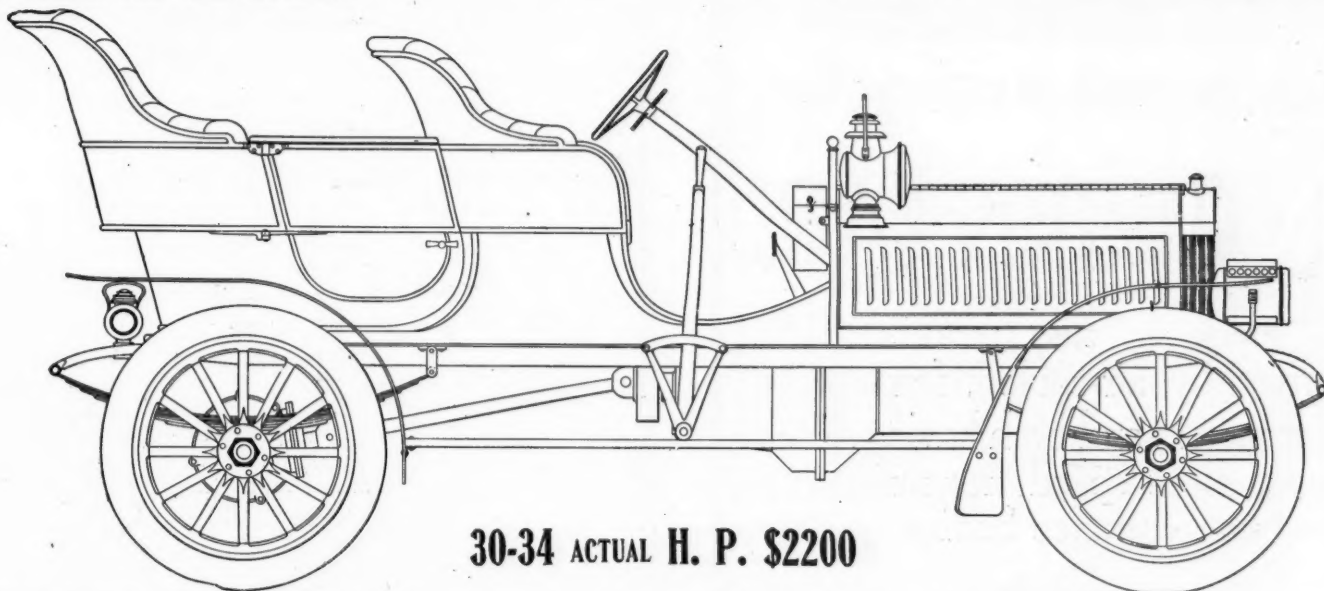
"RIGS THAT RUN"

NOTE—WE ARE THE OLDEST MANUFACTURERS OF GASOLINE AUTOMOBILES IN THE UNITED STATES



18-22 Actual H.P. \$1600

The simplest car ON EARTH, a child can run it. Will carry 5 people anywhere from one to forty miles an hour. Design, finish and upholstery are positively unsurpassed NO MATTER WHAT THE PRICE. We brought out the first 2 cylinder over seven years back, and our YEARS OF EXPERIENCE enables us to eliminate the many defects which are sure to develop in new cars. THIS CAR IS EQUAL (both in size, H. P., speed and finish) to most of the 4 cylinders listing from \$2,500 to \$3,000. Double cylinder (opposed) foot governed, motor and transmission integral, CANNOT GET OUT OF LINE. Sliding gear 3 speeds forward and reverse, shaft drive, direct on high speed, large double side entrance tonneau, positively noiseless. ALL OPTIONS as to COLOR, TIRES, FINISH, UPHOLSTERING, ETC., full equipment of 2 searchlights, 2 side lights, tail light. If we charged \$3,000 this car would BE EQUAL TO ANY AND SUPERIOR TO MANY. It stands without a parallel in automobile history. For thirteen consecutive years our sales have increased EACH YEAR. 1905 will totally eclipse all previous attempts. (THERE MUST BE A GOOD REASON FOR "OUR SUCCESS.")



30-34 ACTUAL H. P. \$2200

Turn these pages either way, Mr. Agent. We know there are others and comparison is all we ask. Pick out all the 4 cylinders listing from \$3,000 to \$4,000 and then turn back and think it over. What do the others say? Engine (4-cyl.) vertical under hood, 30-34 actual H. P., speed 1 to 50 miles an hour, sliding gear, 4 speeds, shaft drive, direct on high, foot governed, (simplest control on earth), tires 32x4", automatic carburetor (never requires adjustment), single lever control, make and break ignition with magnet, irreversible steering gear, especially powerful brakes (4), Timken roller bearings, elastic frame armored type, 12" ground clearance, double side entrance tonneau, special high curved back, French type, practically noiseless, no vibration. THESE ARE THE GOOD FEATURES WHICH ALL THE GOOD CARS CLAIM. WE HAVE EVERY ONE OF THEM, AND, WHAT IS MORE, OUR CLAIMS ARE BACKED UP BY 12 YEARS OF GOOD SOLID EXPERIENCE. Our 4-cylinder, 30-34 actual H. P. car is fully the equal of any car on earth, listing at double OUR PRICE, and is easily superior to many listing at \$3,500. DON'T BE SKEPTICAL AND SAY IMPOSSIBLE; it is possible, in fact, it is a reality, when we say we are at least \$1,000 below our nearest competitor. We have ALREADY PROVEN IT. Look us up, if you will (we have yet to lose our first long distance, endurance or hill-climbing contest), and we have always entered stock cars in EVERY BIG EVENT. LASTLY: Our capacity on this model is 300 cars and they are bound to go fast. WE ARE MAKING SOME RADICAL CHANGES IN OUR SELLING AGENTS and have some excellent territory at our disposal. Our AGENTS POLICY is the best AUTOMOBILE INSURANCE ON EARTH. YOU ARE ABSOLUTELY PROTECTED FOR 366 DAYS. Our discount is the most liberal QUOTED and there is something ahead of you to keep hustling for ALL THE TIME. (WRITE TODAY FOR OUR SPECIAL DISCOUNT.) Tomorrow may be too late.

ST. LOUIS MOTOR CARRIAGE CO.

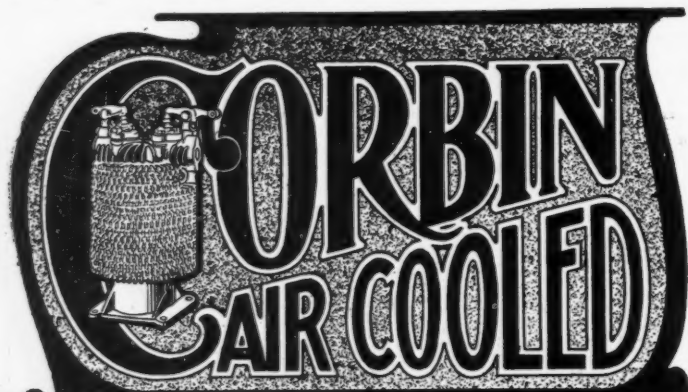
11-19 N. VANDEVENTER AVE.

ST. LOUIS, MO. - - U.S.A.

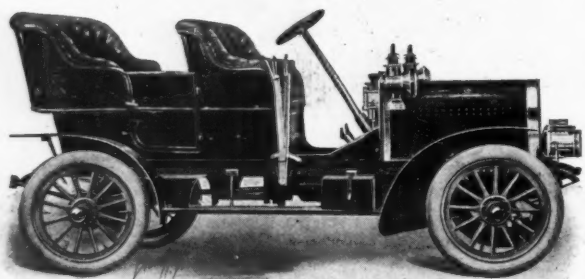
GENERAL SALES OFFICES

Write: ST. LOUIS MOTOR CARRIAGE CO.

T. B. Vanalstyne, Sales Mgr. Binghamton, N. Y.



Motor Cars will agreeably surprise you. With their efficiency, flexibility and beauty—most of all with their unique system of air-cooling, they stand second to none in their class.



Model D. 16-20 h. p. \$2000

The CORBIN CAR

is made in two models, both driven by air-cooled, four-cylinder motors and both having slide-gear, three speed transmissions and side entrance bodies.

Catalog mailed on request.

THE CORBIN
MOTOR VEHICLE
CORPORATION.

NEW BRITAIN, CONN.

NEW YORK AGENCY, 4 West 38th Street
BOSTON AGENCY, 163 Columbus Avenue

DUQUESNE

"Half of Thirty-Five"



We pronounce it "DUKANE"
please yourself, though

Do you remember

that only five years ago the "Foremost" Automobile builders (they're mostly hindmost now!) in this country, advocated weight as the key to strength. The Standard car in those days of angle iron and crude castings, weighed 3000 lbs.

We Duquesne Folks

began then the construction of a car along French lines—four-cylinder vertical motor, developing **one actual horsepower for every one hundred pounds of car.** They said, "Impossible! impractical!"

Since then

it has been demonstrated that the **light car** not only is of greater efficiency, but that the "perambulating junk piles" thrash themselves to pieces!

You Cannot

build a car of "DUQUESNE" quality—light, flexible, powerful and handsome—by the use of cheap angle iron and castings. **Steel stampings, cold-drawn and pressed steel and electric welding** only can accomplish this.

How can We?

and sell it at "**HALF OF THIRTY-FIVE.**" That's our secret!

Duquesne Construction Co.

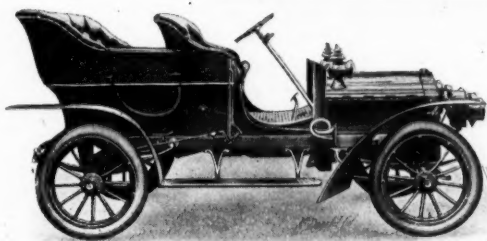
JAMESTOWN, N. Y.

DEALERS
 HAVE YOU HEARD ABOUT
 THE NEW
HAMMER
 AIR-COOLED RUNABOUT
 PRICE RIGHT
 POWER RIGHT
 QUALITY RIGHT
 READY FOR DELIVERY ABOUT
 APRIL THE FIRST
 GET IN LINE NOW
 FOR THEM
 IT WOULD PAY YOU TO LEARN ABOUT
 OUR AGENCY PLAN
 WHICH IS JUST ABOUT
 ALL THE PERSIMMONS
 YOU BET
 TELL US YOU ARE INTERESTED
 AND WE WILL OPEN YOUR EYES—WIDE

HAMMER MOTOR CO.
 1230 Majestic Building DETROIT, MICH.

"THAT CAR OF SUPREME WORTH"

THE
STODDARD-
DAYTON



\$2000 25 H. P. 1800 Pounds
 3 Speed and Reverse Sliding Transmission
 Shaft Drive Perfect Workmanship

Has So Much Merit That It is Sharply Defined
 and Distinctive Over All Others.

Dayton Motor Car Co., Dayton, O.

CHICAGO
 McDuffee Auto Co.
 1449 Michigan Av.

NEW YORK
 Maxwell Briscoe Co.
 317-319 W. 59th St.

BOSTON
 Randliff Motor Car Co.
 24-26 Columbus Av.

Peerless
The Car
of Achievement

Peerless Springs

are semi-elliptic and located directly under the side members of the frame.

They are specially wide, with few leaves.

RESULT IS

Greater resiliency—consequent ease and comfort in riding.

1905 PRICES

| | | | |
|---------|---------|---------|---------|
| 24 H.P. | 30 H.P. | 35 H.P. | 60 H.P. |
| \$3,200 | \$3,750 | \$4,000 | \$6,000 |

Send for Catalogue now ready.

PEERLESS MOTOR CAR CO.
 CLEVELAND, OHIO.

Member A. L. A. M.

L. S. & B. Co. CLEVELAND

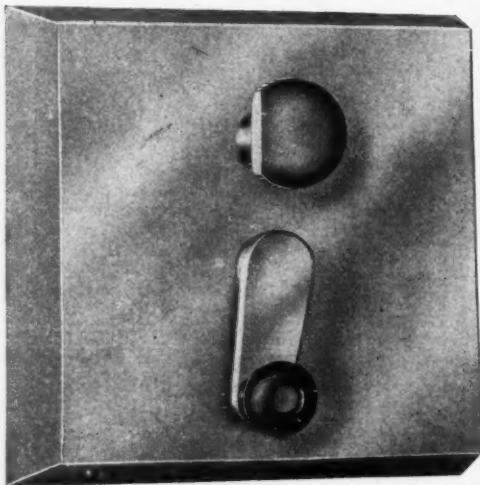
FOUND!

A combination Switch Lock that will protect your automobile from theft, or unauthorized use, and, most important of all, insures long life for the batteries.

Its cost (\$5.00) can be saved many times over in a year in saving of batteries alone.

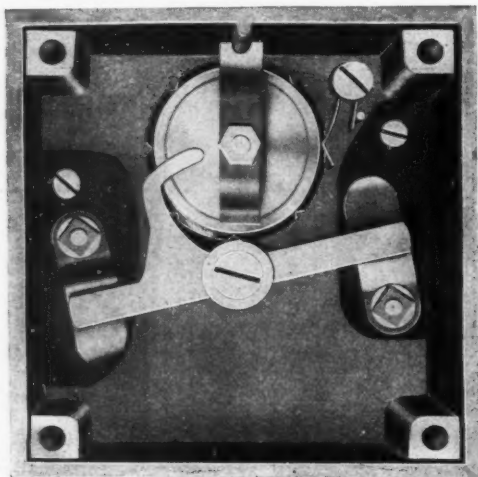
The combination can be worked in the dark instantly, quicker than you could take a key out of your pocket, and without removing your gloves.

No key to get lost or misplaced.



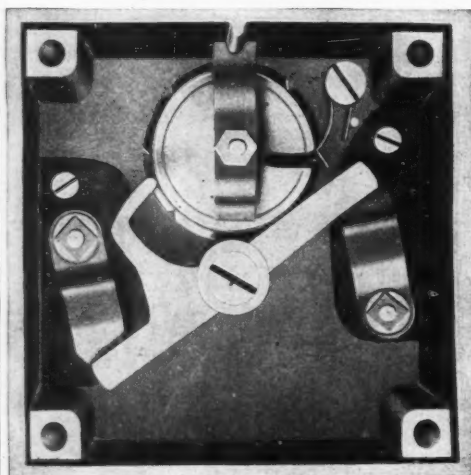
THE QUESTION

Is it worth \$5.00 to insure your car permanently against theft and wear on the batteries?



THE ANSWER

Your own common sense.



Try it, and if not satisfactory return it to us and we will refund the money.

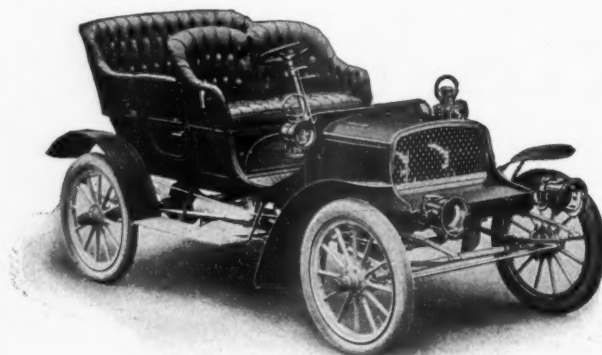


ACORN BRASS MANUFACTURING COMPANY
56 N. Green Street, Chicago, Ill.

PREMIER

Four Cylinder

Air Cooled



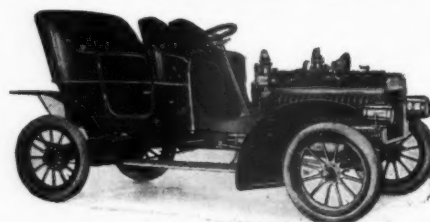
Is perfectly adapted to tropical Yucatan or arctic Canada—hence the demand for the most *suitable* car.

Write for catalogue

PREMIER MOTOR MFG. CO.
1007 Georgia St. Indianapolis, Ind.

THE MOLINE

\$1600

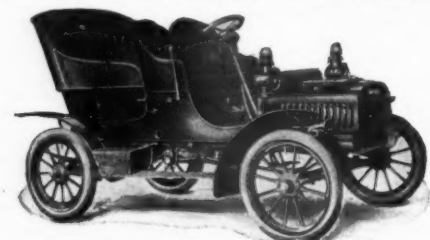


18 H.P.

MODEL "B"

Four cylinder vertical motor, 4-inch bore, 4 1/4-inch stroke; very simple and fully accessible; Automatic oiler, sight feeds on dash; Shaft drive to bevel gear axle; 105 inch wheel base. Three point spring suspension, with full elliptic scroll springs rear, and semi-elliptic crosswise in front, side entrance surrey tonneau that is easy of access and comfortable to ride in. All bodies ironed for canopy or extension cape tops.

\$1000



12 H.P.

MODEL "D"

Double cylinder, horizontal opposed motor, 4 1/4-inch bore and stroke. Single roller chain drive. Automatic lubricator, sight feeds on dash. 86-inch wheel base, 30 inch wheels, 3 1/2-inch tires in the rear, 3-inch front. Three point spring suspension, same construction as on the touring car. Detachable side entrance surrey tonneau that is comfortable and easy.

MOLINE AUTOMOBILE CO., East Moline, Ill.

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Buck Auto Carriage Implement Co., Davenport, Iowa. Wm. Gregory, Los Angeles, Calif.
Mathewson Automobile Co., Denver, Col.

If the Fisk Had Failed to "Make Good"

You would not now be hearing
so much about

Mechanically Fastened Tires



It was the first tire of the sort—the first REAL automobile tire, and its remarkable success is what has caused the world to "sit up and take notice." The fact is perfectly obvious to all who use their brains to think with, and conveys a world of significance.

Let us send you a copy of our booklet.
It's full of "meat."

THE FISK RUBBER COMPANY

Chicopee Falls, Mass.

BRANCHES:

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| Boston, | 226 Columbus Ave. | St. Louis, | 3908 Olive St. |
| Springfield, | 40 Dwight St. | Omaha, | 1116 Farnum St. |
| New York, | 754-756 Seventh Ave. | Kansas City, | 1330 Main St. |
| Philadelphia, | 828 Arch St. | Minneapolis, | 704 Hennepin Ave. |
| Atlanta, | 103 N. Pryor St. | Denver, | 1533 Glenarm St. |
| Syracuse, | 423 So. Clinton St. | San Francisco, | 114 Second St. |
| Buffalo, | 893 Main St. | Los Angeles, | 1034 So. Main St. |
| Cleveland, | 318 Euclid Ave. | Montreal, | Canada. |
| Detroit, | 262 Jefferson Ave. | London, | England. |
| Chicago, | 1251 Michigan Ave. | | |



The Incomparable WHITE

THE CAR FOR SERVICE

To secure the greatest pleasures from touring, you must have a car which can carry you away from the beaten highways and bring you face to face with nature. An ordinary car cannot stand the test of rough cross-country work.

The White is not an ordinary car. It goes anywhere where the ground can sustain its weight. There is no trail—no matter how stony, or sandy, or steep—which the White cannot traverse. Buy a White and see the country as you have never seen it before.

Four years of uniform success establish all the claims made in behalf of the White. Write to us for bulletin No. 8, which gives an interesting summary of automobile history.

WHITE Sewing Machine COMPANY

Cleveland, Ohio.

CLASSIFICATION ... WHY? DISTINCTIVE

THE LIGHTEST
THE STRONGEST
MOST DURABLE
MOST EFFICIENT
BEST FINISHED



ABSOLUTELY SAFE
PERFECTLY CLEAN
BEST TO RIDE
MOST ECONOMICAL
TO KEEP

THE BAKER ELECTRIC

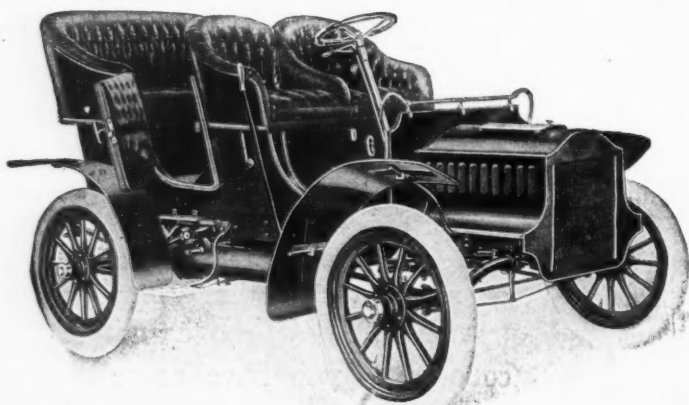
Attractive in Rich Finish and Design. ✱ Simply Manipulated. ✱ Always Satisfactory.
A Carriage Any Lady Can Drive.

SEND FOR OUR B K CATALOG.

THE BAKER MOTOR VEHICLE CO., Cleveland, Ohio

Chicago Agents: PARDEE-ULLMANN CO., 1400 Michigan Ave., Chicago.

MORE POWER



Non-Detachable, Side Entrance Touring Car. Price \$950

Is delivered to the road wheels of our 1905 cars than ever before.

Our popular priced models possess all the essential features of the most expensive touring cars.

They are splendid hill climbers—are capable of taking four people anywhere that wheels will go—as fast as ordinary roads will permit.


For the man that wants a "big" car we have brought out our new four cylinder, 30 horse power motor, planetary three speed transmission, operated by *one* lever; shaft drive. Side entrance body, of wood or aluminum, and, like all our former models, it is in every way, more car

THAN YOU PAY FOR

—more power, more speed, more reliability, more comfort, more general excellence—far more. We want you to know more about our cars for this year. Send for Catalogue.

CADILLAC AUTOMOBILE COMPANY : DETROIT MICHIGAN

Member Association Licensed Automobile Manufacturers.



POPE
Waverley
ELECTRICS

A very prominent man who owns a large number of motor cars of almost every conceivable size, style and type, recently summed up the whole situation in the following words: "The Electric is pre-eminently THE automobile for all general utility purposes. Were it necessary for me to sell all but one of the cars I own, I would retain the Pope-Waverley Electric."

MODEL 36, Speed Road Wagon. Price, without top, \$900, with top, \$950. Our aim has been to so design and equip it that it will travel more rapidly than the regulation electric carriage. We have succeeded in producing a carriage that will do 18 miles an hour.



MODEL 36

MODEL 26-C, COUPE TOP CHELSEA, Price \$1,450. Coupe Top is easily removed, making an open carriage for summer. This is particularly an all the year round automobile.



MODEL 26-C

No matter what your wants are in an electric motor car, we believe we can supply them. We make Delivery Wagons, Trucks on specifications, and many others not shown here.

WRITE FOR COMPLETE CATALOGUE.

POPE MOTOR CAR CO.

Indianapolis, Ind.

Columbia

*Electric
Victoria Phaeton*

Mark LXI. Price \$1350

Lightest, fastest, widest of radius and most luxurious electric in its class. Rich in harmonious lines and "de luxe" features of finish and appointments. Hand-buffed hood. Fifteen miles per hour speed. Battery weight distributed over both axles. Single motor equipment. Enclosed chain drive. Ideal for the physician. Perfect for ladies' use.



Catalogue of Columbia Electric Carriages will be sent on request; also, separate catalogues of Columbia 40 and 18 h. p. Gasoline Cars and Columbia Commercial Vehicles.

ELECTRIC VEHICLE COMPANY, Hartford, Conn.

NEW YORK
134 West 39th Street

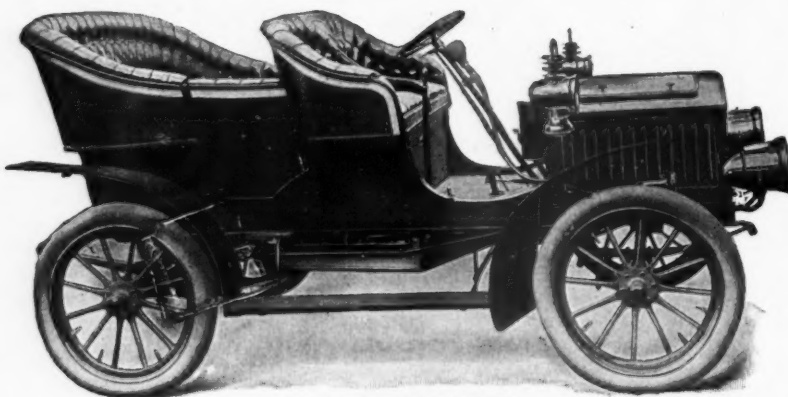
BOSTON
74 Stanhope Street

CHICAGO
1413 Michigan Avenue

Member Association Licensed Automobile Manufacturers

Two Impulses with Every Revolution

GET this fact firmly fixed in your mind:— That with the Elmore two-cylinder two-cycle engine there is absolutely no cessation in the application of power. The torque is steady, constant, and without intermission—two impulses being produced with every turn of the fly-wheel. If you'll take this one fact alone and give it the study its importance deserves, you are bound to come to the conclusion that the development of the Elmore two-cycle engine is the most important achievement of the age in automobile manufacture. The eyes of experts and users alike are upon this wonderful engine—its success is the one pronounced sensation of the day.

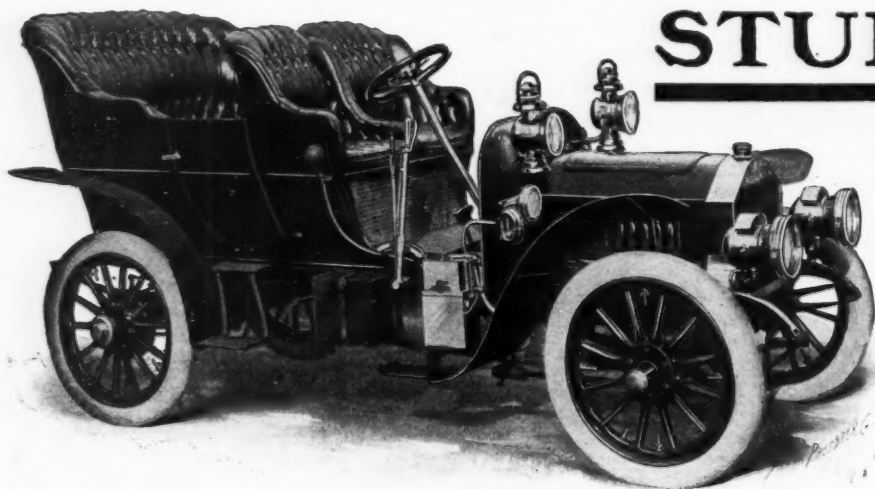


16 H. P., \$1,250.00

Send for our full line of literature, the booklet, illustrating the 6,000-mile trip, our catalog, explanation of our engine, and the opinions of people who have used our cars—all sent free, or if you wish, we will send a 10x12 photograph of the **PATHFINDER** on receipt of 10 cts. in stamps.

The Elmore Manufacturing Company
804 Amanda Street **CLYDE, OHIO**

Members of the Association of Licensed Automobile Manufacturers.



No. 9503 STUDEBAKER 4-CYLINDER GASOLINE TOURING CAR
BUILT FOR STRENGTH, SPEED AND ENDURANCE

Ease of control and operation unsurpassed. Each vital part tested beyond any possible demand. : : :
"STUDEBAKER QUALITY" THROUGHOUT

Studebaker Automobile Co. SOUTH BEND, INDIANA

Members of the Association of Licensed Automobile Manufacturers.

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at 48th St.
Denver, Col., cor. 15th and Blake Sts.
Chicago, Ill., 378-388 Wabash Ave.
Salt Lake City, Utah, 157-159 State St.

Kansas City, Mo., 810-814 Walnut St.
Portland, Ore., 330-336 E. Morrison St.
San Francisco, Cal., cor. Market and 10th
Sts.
Dallas, Texas, 317-319 Elm St.

AGENCIES IN ALL PRINCIPAL CITIES

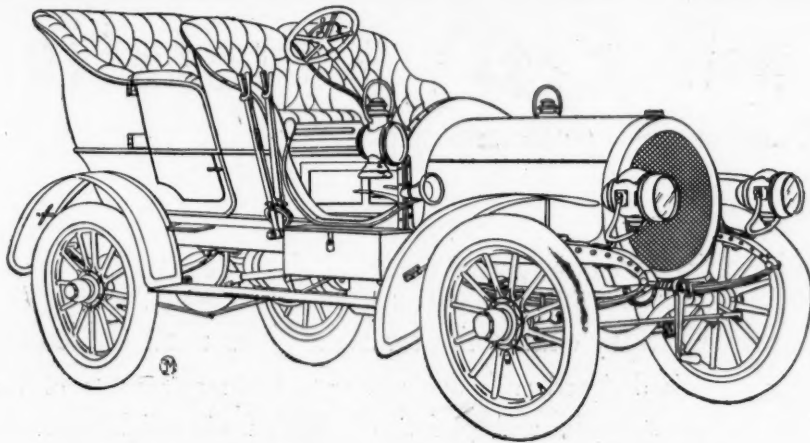
STUDEBAKER

MODEL 9503

SPECIFICATIONS:

MOTOR: Four-cylinder vertical, 20 to 24 horsepower. **TRANSMISSION:** Sliding Gears. **SPEEDS:** Three forward and one reverse; four to forty-five miles per hour. **STEERING:** By wheel and irreversible. **BRAKES:** Two entirely independent systems. Hand lever, internal expanding on both rear hubs; foot lever on drive shaft. **IGNITION:** Jump spark with dynamo and supplementary storage batteries. **CARBURETER:** Float feed with 1905 refinements. **COOLING:** By pump and cellular radiator. **GASOLINE CAPACITY:** 14 gallons. **LUBRICATION:** Positive with mechanical oiler, with sights located on dash. **COMMUTATOR:** Accessible and maximum wearing capacity. **FRAME:** Pressed steel. **WHEEL BASE:** 96 inches. **VALVES:** Mechanically actuated. **AXLES:** Front axle tubular steel; rear axle so arranged that no strains from the weight of the car fall on the driving shafts.

WRITE FOR OUR CATALOGUE



NATIONAL Model "C" Gasoline Touring Car

Five passenger, side entrance body, detachable tonneau, best of finish and trimming, new round radiator, oval hood, four cylinder $4\frac{1}{4} \times 5$ vertical, bevel gear drive, double ball-bearing slide gear transmission—direct on high, hardened steel gears, gear-driven commutator, rear wheels revolve on double ball-bearings on outside axle tube, all weight taken off inner axle and differential, spherical gear case, internal expanding metal to metal brakes, pressed steel frame, long wheel base, engine and transmission on sub frame, double steering connections.

24-30 H. P.

Price, \$2,500.

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Boston: Linscott Motor Co., 163 Columbus Ave.

Chicago: Hayden Automobile Co., 1337 Michigan Ave.

St. Louis: Westminster Automobile Co., 4290 Olive St.

San Francisco: F. A. Jacobs, 1331 Market St.

Springfield, Mass.: Fowler Automobile Co.

NATIONAL MOTOR VEHICLE CO.

1006 East Twenty-second Street

INDIANAPOLIS, INDIANA



What Do You Want

in an Automobile? Is it service or adventure? A four to sixteen mile-an-hour speed always at your command, or a racing machine?

National Electric Vehicles

are thoroughly practical; simple in construction. Easy for any one to handle; noiseless, smooth running; go at desired road speed, yet under perfect control always. Ample battery equipment—the most powerful electrica made. Our Catalogue shows every style.

Electrics

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We have entered suit against the Pennsylvania Rubber Company, for infringement of G & J Patents, and the trade is warned against the purchase of such tires.

The following manufacturers are licensed under G & J patents:

Hartford Rubber Works Co.
The B. F. Goodrich Co.
Diamond Rubber Co.
Morgan & Wright
Fisk Rubber Co.

Continental Caoutchouc Co.
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International Auto & Vehicle
Tire Co.
India Rubber Co.

G & J TIRE CO., MAIN OFFICE AND FACTORY **Indianapolis, Indiana**

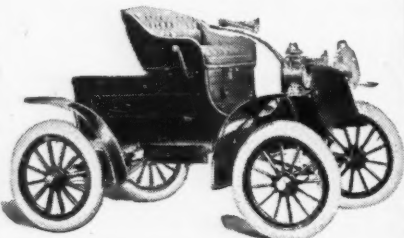
Northern

Maintenance

THE Northern operates at less cost for maintenance than any other touring car made. The secret of Northern economy is Northern construction. Every part is designed with due regard to the requirements of the whole. Unrivalled mechanical simplicity, great strength, and perfect distribution of weight are the predominating factors.

No other car has such perfectly protected and quickly accessible machinery; such direct and economical power

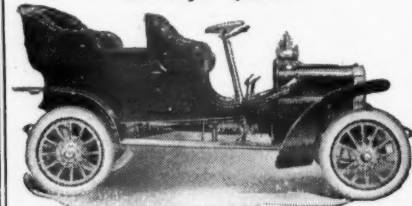
Sturdy Northern Runabout
7 h. p. \$650



transmission, or such a strong, simple rear axle. No other car at the price is so generously and completely equipped.

Write for new Catalogue 14, showing complete line of the best cars ever offered for any money.

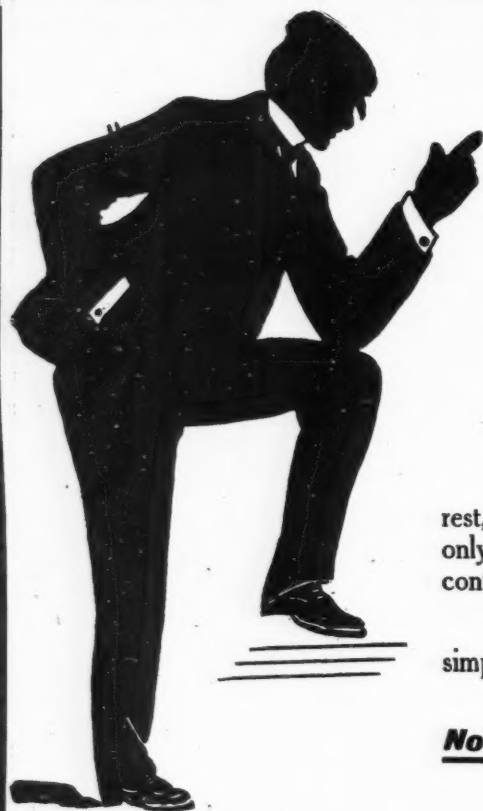
Silent Northern Side Entrance
Touring Car
18 h. p. \$1700



PETER FOGARTY
142 W. 38th St.
New York City Agent

NORTHERN MANUFACTURING CO.
DETROIT, U. S. A.

Member Association Licensed
Automobile Manufacturers



THE GASAULEC

"THE SIMPLE CAR"

A 40-45 H. P. four cycle engine, five passenger, side entrance, gasoline touring car of the highest grade.

Without a starting crank.

Without a "clutch."

Without "change speed gears."

Without cams, rocker shafts, tappets or valve gearing.

Without the usual confusing multiplicity of operating levers.

Without complications.

Every movement of the motive power and the car, from a state of absolute rest, forward at any speed or reverse, controlled by one simple foot pedal having only forward and backward action. Positively no other speed or movement controlling device of any kind on the car.

Triple brakes. Irreversible steering wheel. The GAS-AU-LEC is the simplest car in the world and the easiest to operate and maintain.

Not an experiment, but a success

Not a freak, but a practical revolution

VAUGHN MACHINE COMPANY

HAMILTON S. CORWIN, President.

PEABODY, MASS., U. S. A.

FIRST IN THE RACE



The RUSHMORE Light
WINS Every TIME
RUSHMORE DYNAMO WORKS
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A word to prospective automobile buyers:—
 Specify MICHELIN TIRES and write us

There is no other tire
 "JUST AS GOOD"

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We are the sole representatives in the United States for the Michelin Tire

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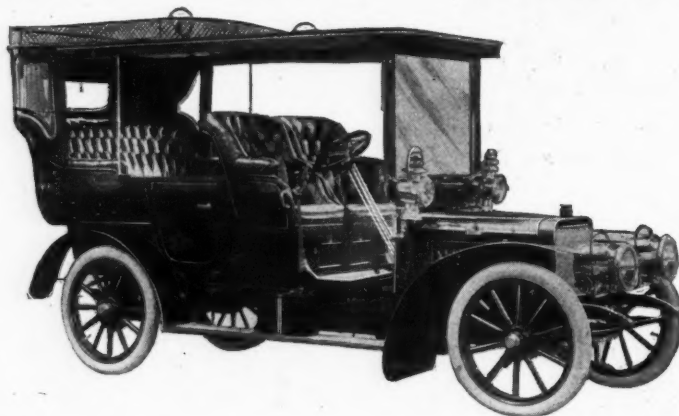
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Represents the Most Advanced
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Perfect Automatic Throttle Control
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LET US PROVE THIS TO YOU

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FIVE TON TRUCK.

Gasoline Freight Trucks and Observation Cars

ANY CAPACITY OR SPEED
WRITE FOR ESTIMATES

CONSTRUCTION Heavy and Substantial. Safety factor of Five. STEEL FRAME.
Size of Platform to suit purchaser. Enclosed Cab. ENGINE, four cylinder, vertical,
Improved Design.

SLIDING GEAR TRANSMISSION; Three speeds ahead (maximum 10 miles per hour)
one reverse.

Now operating successfully under Commercial Conditions, demonstrating Economy and
Reliability.

WHITING FOUNDRY EQUIPMENT CO.

GENERAL OFFICE AND WORKS: HARVEY, ILL. (CHICAGO SUBURB) U. S. A.
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STANDARD PARTS FOR POWER TRUCKS AND WAGONS

The marked economy of power wagons for delivery, express and truck service, and their superior reliability when in reasonably intelligent hands, is so well established that those who are conversant with the facts cannot fail to see that power wagons are rapidly beginning to supersede horse service.

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| STEERING GEAR, Complete | CHAINS | COUNTERSHAFT and REDUCTION GEARS |
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SOLAR MOTOR LAMPS

"SHOW THE WAY"

with a clear, steady, intense light. Wouldn't you rather SEE what's ahead than guess at it? No guessing when "Solars show the way."

There is a reason for everything, and the secret of SOLAR supremacy is found in the generator. Are you familiar with this "Solar System?" If not, it will pay you to investigate. You can't afford to add "lamp troubles" to your other auto difficulties and "good enough" lamps certainly mean "trouble" while with SOLARS you are guaranteed **perfect satisfaction.**

BADGER BRASS MFG. CO., Kenosha, Wis.

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is not only known as the best. but it is the best tire produced.

We'll prove it to you if given the chance, as work, not words, will acquaint you with the superior wearing quality of these tires for heavy trucks, etc., if you will give them a trial.

Our tires for Light Delivery Vehicles are made of the same dependable rubber and will therefore prove just as satisfactory and equally as profitable.

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THE PENNSYLVANIA RUBBER CO.

believes that the finest materials put
together by the most skillful hands
are what make a perfect tire.

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CLINCHER

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"STEVENS-DURYEA"

NEW 20 HORSE POWER, 4 CYLINDER TOURING CAR (MODEL R.)

In designing the "STEVENS-DURYEA" Runabout it was our purpose to produce an Automobile which would fulfill the following conditions:

First—It should be as free as possible from noise and vibration.

Second—The combustion of gasoline must be so perfect that there will be no disagreeable odor.

Third—It must be a powerful and steady hill climber and speedy on the roads.

Fourth—It must—and this is the most important of all—have endurance and reliability.

We have embodied all above requisite qualities in our new 1905 Model Touring Car, and strongly commend our latest style machine, both to the present patrons of our noted runabout and to all intending purchasers.

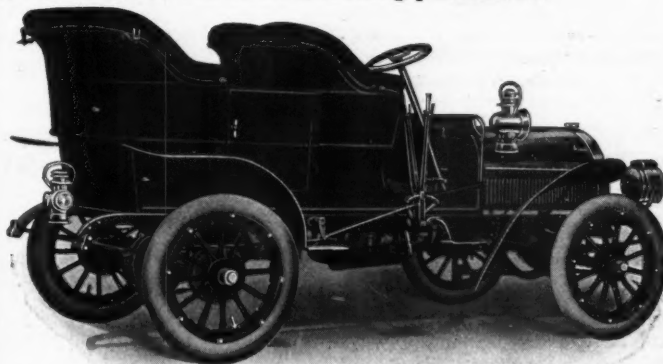
Our Touring Car has four cylinders, vertical front, beveled drive, side door tonneau, aluminum body. Is twenty horse power and weighs 1650 pounds.

Price, \$2500 Net, F. O. B., Chicopee Falls, Mass.

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Send for beautifully illustrated catalogs, embodying detailed description, and also history and records of our noted "racing spider."

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Members Association Licensed Automobile Manufacturers

Climbs any hill.

Outclasses all competitors.

Motor is quiet, reliable and efficient.

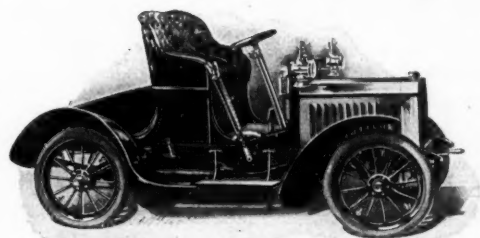
Power enough and to spare.

Only one on earth.

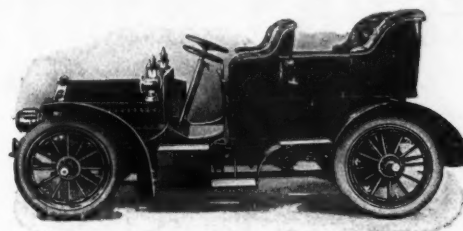
Uses 50 per cent less gasoline.

No muffler.

Does its work and does it well.



12-15 H. P., \$1200



24-28 H. P., \$2000

The E. H. V. Co., Middletown, Conn.

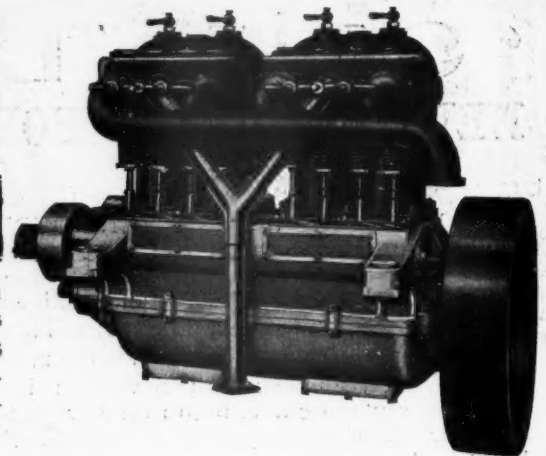
BEAVER * MOTORS



Horizontal Opposed Cylinder Engine, 12-14 H. P.
Same Engine, Size No. 2, 16-18 H. P.

**Design, Workmanship, Material
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We are equipped to furnish these engines on a manufacturer's—not a builder's—basis. This guarantees low cost, interchangeability of parts and uniform performance.



4-Cylinder Vertical Motor, 22-24 H. P.
American Reproduction of Latest "Renault" design.

Deliveries to Suit Purchaser

TWO STYLES --- THREE SIZES --- DIMENSIONS FOLLOW

| HORIZONTAL OPPOSED CYLINDER ENGINE | 12-14 H. P. | 16-18 H. P. | FOUR-CYLINDER VERTICAL MOTOR | 22-24 H. P. |
|---|---------------|---------------|---|-------------------|
| Bore and Stroke | 4 3/4 x 4 in. | 5 x 4 1/2 in. | Bore and Stroke | 4 1/2 x 4 3/4 in. |
| Total Height | 12 " | 13 1/2 " | Total Height | 24 " |
| Height from Bottom of Arms to Top of Cylinder | 8 1/2 " | 8 " | Height from Bottom of Arms to Top of Cylinder | 10 1/2 " |
| Length over all | 28 1/2 " | 32 1/2 " | Length over all, including Flywheel | 33 " |
| Width over all, including Flywheel | 15 " | 17 1/2 " | Total Width to Extremity of Arms | 19 " |
| Total Width to Extremity of Arms | 9 " | 9 1/2 " | Height from Supporting Base of Arms to Center Crank Shaft | 2 3/4 " |
| Height from Supporting Base of Arms to Center Crank Shaft | 1 1/2 " | 1 " | Inside Clearance, Width of Sub-Frame required | 16 " |
| Weight without Flywheel | 155 lbs. | | Weight | 350 lbs. |

Base of Aluminum Alloy—Cylinder of Special Iron Casting

Correspondence
Solicited

BEAVER MANUFACTURING CO.

MILWAUKEE
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If you want **RELIABILITY** in a Tire Buy the

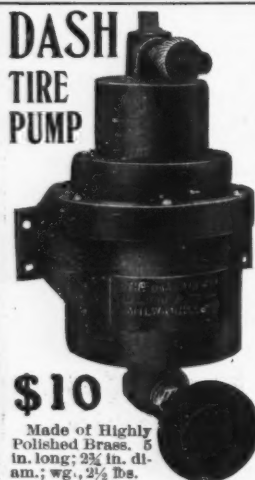
SWINEHART

Resilient, Durable and Reliable

Write for new book on "experiences of others." It will interest you

The Swinehart Clincher Tire & Rubber Co.

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\$10

Made of Highly
Polished Brass, 5
in. long; 2 3/4 in. di-
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"LET THE ENGINE DO THE WORK"

The cleverest automobile device ever marketed

DASH Automatic TIRE PUMP

Fastens to Dashboard. When tires need inflating, attach rubber hose (furnished with pump) from pump to tire; start the engine and the job is done in short order. Is always ready for use. Impossible to get out of order.

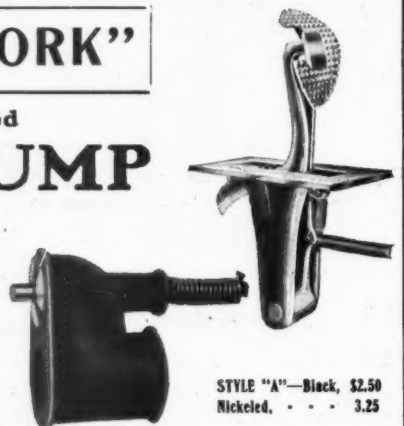
"PERFECT" AUTOMATIC LOCKING BRAKE
Locks or releases brake at will by half-inch normal motion of operator's foot.

"PERFECT" MUFFLER CUT-OUT VALVES
Controlled by pedal on foot-board. Will fit any car. Explosions in muffler cannot possibly damage muffler.

Illustrated circulars give minutest description of each article. Write.

GARAGE EQUIPMENT COMPANY MILWAUKEE WISCONSIN

Dealers: The Dash Tire Pump has struck a popular fancy. Get ready now for the demand.



STYLE "A"—Black, \$2.50
Nickel, . . . 3.25

STYLE "A"—Price, \$1.25

KNOX

WATERLESS CARS



MODEL "F" TONNEAU Two-Cylinder Side Entrance
Price \$1,900

Reliable Economical Powerful

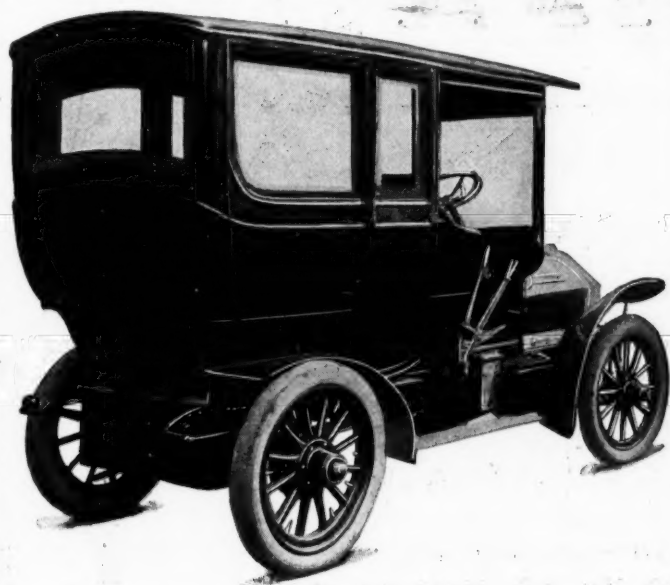
Marvels of Strength and Beauty. THE KNOX PATENT AIR COOLING SYSTEM is absolutely unlike and 50% better than any other.

We would be glad to tell you more about it. Write us today!

KNOX AUTOMOBILE CO., SPRINGFIELD, MASS
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COUPE LIMOUSINE



Capacity, five, inside, and plenty of room at that. Finish and workmanship GUARANTEED equal to Brewster's best.

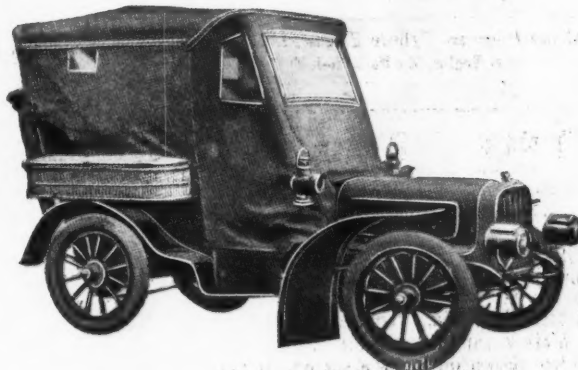
Let us tell you all about it in a personal letter—WRITE

The Chisholm-Phillips Automobilia Co.,
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EXCLUSIVE AMERICAN AGENTS FOR THE SIMMS-BOSCH MAGNETO. USED ON 90 PER CENT OF ALL EUROPEAN CARS

TOPS

AND CANOPIES OF EVERY DESCRIPTION



TAKE THIS ONE FOR INSTANCE

Its an Eclipse 5-Bow Folding Cape Top that is absolutely

WEATHER PROOF

We make two styles of this top:

Style P. Khaki Cloth or Gray Mackintosh . . . List \$100

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Our complete line includes every type of top and canopy, from Runabout sizes to the largest Touring cars. Let us mail you our descriptive and illustrated catalogue of goods and prices, sent on request.

ONE THING IN PARTICULAR

to which we want to call the attention of both trade and public is the Eclipse Attachment, by means of which anyone, however inexperienced, can attach top to car in a very few minutes without marring finish of body or removing upholstery. This attachment is our own invention and of recent date. Users of this device need not call for aid of any kind from blacksmiths or carriage repairmen when attaching top to body. It is simple, strong and guaranteed all that is claimed for it. The least you can do is write for illustrated descriptive matter, prices, etc.

ECLIPSE BUGGY & MFG. CO.
FORT WAYNE, INDIANA

Best and Cheapest

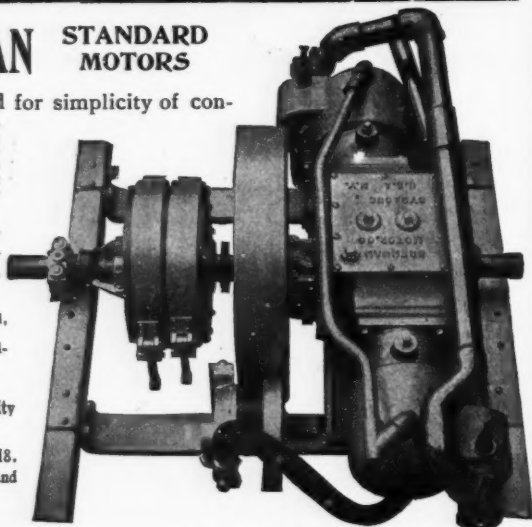
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are unexcelled for simplicity of construction, substantial and large bearings, ease of adjustment. All parts unusually accessible for inspection.

Built in 6, 8, 12, 14, 16 and 20 h. p. Investigation solicited.

We make a specialty of Motors for

THOMAS MODEL 18. CADILLAC, FORD and OLDSMOBILE.



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Brennan Motor Co., Syracuse, N. Y.
Gentlemen:—The writer has been operating one of your motors, a double cylinder eight horsepower for the past two seasons and wishes to state that the motor has given excellent satisfaction and the repairs on same have been nothing whatever. The motor is being used on a 1,200-lb. runabout automobile. Would state that with the exception of twice I do not know of the motor stopping of its own accord during the season. I am satisfied that I have had excellent good luck and wish to recommend the Brennan motor to any one wishing a motor for an automobile. Yours truly,

NAME WILL BE GIVEN ON APPLICATION
Write for Particulars.

BRENNAN MOTOR CO.

SYRACUSE, N. Y., U. S. A.

When anything of an urgent nature arises we work nights and Sundays, if need be, to get the work out quickly.

- ☐ Steering Wheels and Tilting Columns.
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- ☐ Bushings—either bronze or babbitt lined.
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- ☐ Brass and Aluminum Castings of all kinds.

Pattern making from blue prints of special parts, a feature with us. Time saved means money saved.

Auto Brass and Aluminum Co.

Kearsley and Mill Streets

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Patent Gas Producer

is not only far superior in every way to all other generators, but is better than any other gas lighting system for motor-cars and boats.

It gives the whitest, steadiest and most penetrating light, and the gas is instantly turned on or off.
Simple, safe, economical, odorless.

Every bit of the carbide is used—no waste—and there is

no after generation

A truly wonderful system that makes

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Mirror Lens Searchlight

better than ever before.

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ROSE MFG. CO., 912 Arch Street, Philadelphia

KIRK'S AMERICAN CROWN SOAP

Is a green soap, consistency of paste, a perfect cleanser for automobile machinery and all vehicles; will not injure the most highly polished surface. Made from pure vegetable oils. If your dealer does not carry AMERICAN CROWN SOAP in stock, send us his name and address and we will see that your wants are supplied.

Put up in 12 1-2, 25 and 50 lb Pails

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the Public who are interested in
their Manufacture, Sale and Use

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You Will Never Know What SATISFACTORY LIGHTS

...ARE UNTIL YOU USE THE...

\$35.00



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It operates equally well with any and all Acetylene lamps. Your LAMP is probably all right. What you really need is something that will furnish PURE, DRY, COOL, HIGH CANDLE POWER ACETYLENE GAS. The only way to get it is to use the

PREST-O-LITE GAS TANK

If your dealer has none in stock, write us for a catalog and give us his name.

Over three hundred dealers have them. Your dealer ought to.

THE CONCENTRATED ACETYLENE CO.
Indianapolis, Ind.

The Von Schwarz

None Genuine Without
JVS
on Tip and Pillar

Acetylene Burners

SOME ADVANTAGES

They are Recognized Standard Burners the World Over

Accurate in consumption. Free from carbonization and other troubles, and they are

Licensed under Patent 589342, August 31, 1897. This patent has been adjudicated by the U. S. Court of Appeal and is VALID.

We advertise not only our burners, but also those firms who confine themselves to equip their lamps with **Licensed Burners.**

Is there any reason why you should equip your lamps with cheap

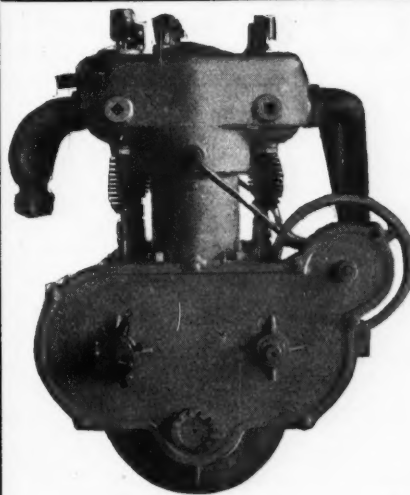
infringing imitations? **Protect your customers as we do protect you.**

For Information and Prices Apply to

H. KIRCHBERGER & CO.,

GENERAL LICENSEES,

50 Warren St., New York

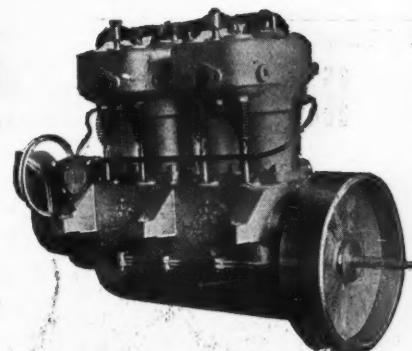


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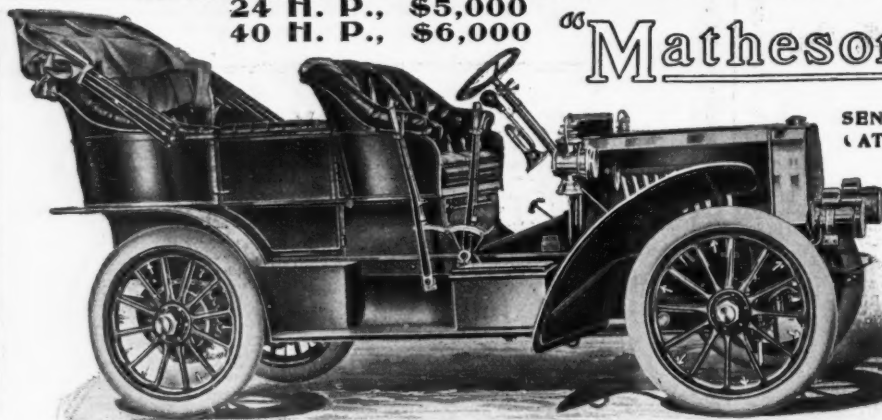
CHAS. KAESTNER MFG. CO.

SOUTH BEND, INDIANA

24 H. P., \$5,000
40 H. P., \$6,000

"Matheson"

SEND FOR
CATALOGUE



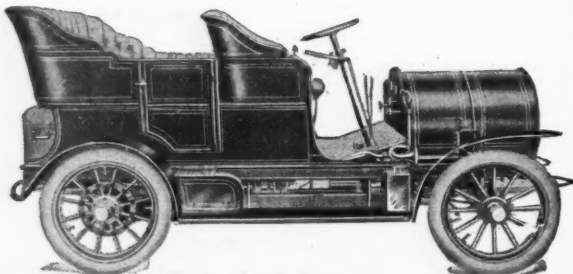
"AMERICA'S FINEST MOTOR CAR"

CHARACTERISTIC FEATURES:

Self-starting from the seat.
Practically noiseless.
Absence of vibration.
Four-cylinder vertical engine.
Valves, in the head.
Automatic carburetor, never requires adjustment.
Automatic speed control, by governor.
Automatic lubrication.
Single lever control.
"Make-and-Break" ignition.
Irreversible steering gear.
Four powerful brakes.
Timken roller bearings.
Armored frame.
Road clearance of 12 inches.
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Wheel base 106 inches.
Imported "Continental" tires.
Imported Honeycomb radiator.
Long life—insured by using greater factors of safety in every vital part than ordinarily employed.
Speed—Guaranteed 40 to 60 miles an hour, according to H. P. gear.

MATHESON MOTOR CAR CO., Holyoke, Mass.
New York Agents, SHEPARD BROS., 500 Fifth Ave.

THE
EXCELLENT



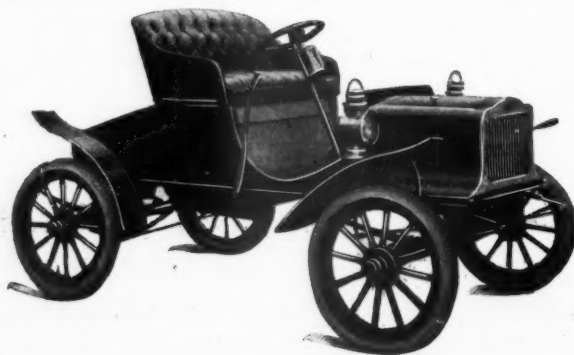
GROUT

No Noise. No Vibration.
Will not freeze in zero weather.
Climb any Hill. Speedy and Reliable.

Grout Bros. Automobile Co.

280 East Main Street, Orange, Mass.
Boston Branch—151 Columbus Ave.

The \$500 Gale



WE wish to state that because this car is sold at so low a figure, is no sign that it is cheap. Every part is the best that we can make or buy, and we will replace any defective parts free of charge at any time inside of one year after purchase.

Eight H. P., horizontal single cylinder 5"x6"; weight, 1,100 lbs.; 72" wheel base; 28"x3" tires. New-type transmission; two speeds, forward and reverse; absolutely oil tight; cone clutch on high speed; new-type bands on low and back up; no gears running on high speed. Pump direct connected to engine. Gasoline and water tanks hold five gallons each. Kingston carburetor, Dow vibrator coil, Brown & Lipe differential, diamond chain. Speed, 30 miles per hour. Frame, angle iron. Body can be tipped up by loosening two nuts in floor of car and removing cotter pin. Car can be run without body, as all wires, connections, etc., are on the chassis.

Chicago Agents: MEAD MOTOR CO.,
1243-45 Wabash Ave.

THE WESTERN TOOL WORKS, Galesburg, Ill.

Have you seen the new **KOKOMO** Mechanically-Attached
Automobile Tire?

*It is just what you
have been looking for*

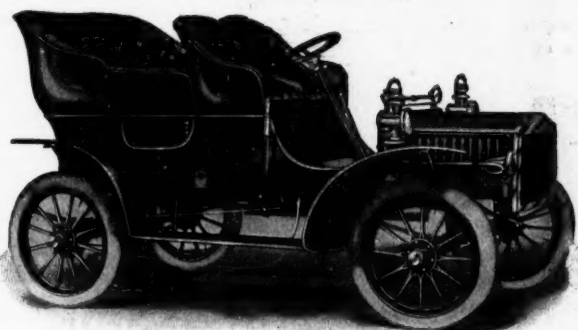


Quickly attached and detached,
Creeping and Rim Cutting entirely avoided.
Made of the very best material and workmanship throughout.
Write us for full particulars.

Kokomo Rubber Co., Kokomo, Ind.



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Model "E." \$1,250

This handsome car is proving a seller. Our Kansas City agent says:

"The Michigan is the finest car on the market."

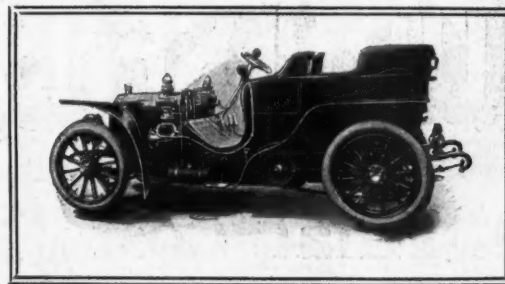
His town is a hilly one.

Just send for "The Proof of the Pudding."

That tells what users say.

You don't have to take our word for it.

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The American Mercedes

The Mercedes transplanted, that's all. But you save import duties on finished parts and agents' commissions, by buying it.

One size: 40-45 h. p.

Price: \$7,500—

The same price as the Mercedes in Paris.

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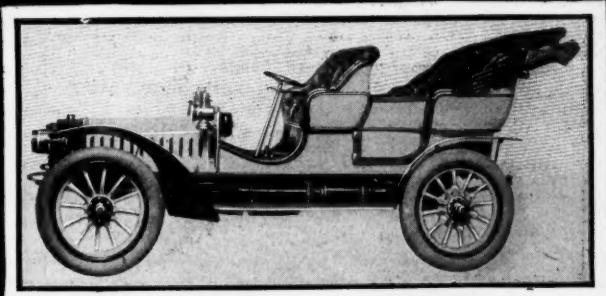
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LONG ISLAND CITY, NEW YORK

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Our booklet tells how we do it.

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A LUXURIOUS CAR



THAT LOOKS THE PART.

2,400 Lbs.
50 H. P.

\$3,500

Same car with 35
h. p. engine,
\$3,900.

Few Parts
108-inch Wheel Base
36-inch Wheels
4 1/4-inch Tires
44 1/4-inch Tonneau Seat Cushion

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GRAND RAPIDS, MICH.

Correspondence Solicited

Send for Descriptive Catalogue.

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This is the wrench that saves you all kinds of trouble—a complete set of wrenches in a single tool.

The Auto Cle is a ratchet wrench with a swivel attachment, works at any angle. Has a complete set of sockets fitting any nut or bolt on any machine.

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We are the sole manufacturers for the United States

Railway Appliances Company

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DURO SHENST

Number 5

Final Cost

That is where the **DURO** battery DOES come into its own.

That is what the **DURO** is built for.

The first cost is higher.

We put it in big type and we are not afraid to advertise it.

It is the **service DURO** gives which makes it the cheapest in FINAL COST.

DURO guarantee means something.

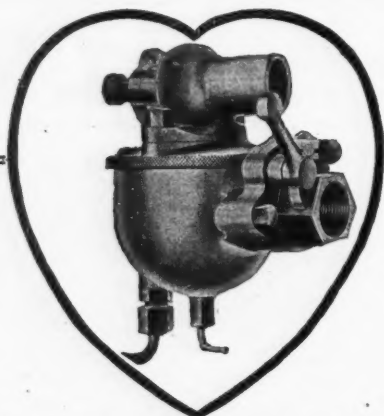
Write us. Get **DURO** information.



"Duro Factory"

CHICAGO BATTERY CO.

1426 Michigan Avenue
CHICAGO



THE HEART OF THE AUTOMOBILE

The Schebler Carburetor

This is the model No. 1 racing Schebler, which was attached to the automobile that broke all world's records for light and middle weight cars and defeated the big 90 h. p. foreign cars, at the Empire City track, Nov. 8th.

If you want to get full power and speed of your engine, besides having a carburetor that gives a perfect mixture at all engine speeds and is not affected by weather conditions, buy the **SCHLEBLER**. It is high priced but it does the work.

Special connection for attaching the Schebler to Oldsmobiles, any model.
Special size carburetor for the Ford two and four-cylinder cars.

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I am the originator, inventor and owner in the United States and Canada of non-skidding devices for Automobile Tires.

The Non-Skidding Covers which I apply to old or new tires are made right here in the United States in my factory, and sold all over the world. They are far superior to any foreign make, as they are made from a superior grade of leather, from specially selected hides, steel hardened rivets, and leather and asbestos strips to overcome heat from friction at high speed.

My PEBBLE and ALLIGATOR NON-SKID RUBBER COVERS are the fastest covers in the world to-day.

The patented "HERCULES" LEATHER NON-SKID COVER can be applied to solid, cushion or pneumatic tires of any make or size.

Leather bead strips and leather linings for your tires will save you dollars.

A GOLDEN OPPORTUNITY FOR SMALL INVESTORS

I am installing plants for the proper repairing and rebuilding of Automobile Tires and for the application of "HERCULES" Leather NON-SKID COVERS in every large city in the United States and Canada.

On an investment of \$2000 (two thousand dollars), which covers the complete installation of such a plant with full instructions for the application of all covers by my secret processes, I can guarantee returns of \$15,000 to \$20,000 annually. But one plant will be installed in each city. Chicago and Milwaukee already sold.

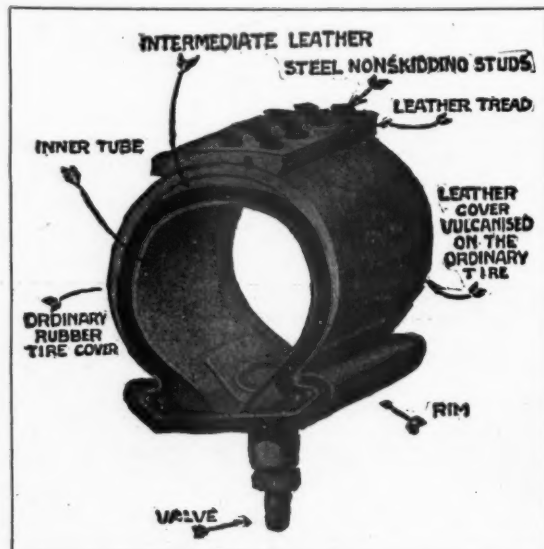
Write today for my proposition.

My booklet price list is FREE TO YOU, and I have a FEW Auto Show Souvenirs for polite inquirers.—FREDERICK E. McEWEN, MGR.

The Republic Rubber Tire and Shoe Co.
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SAMSON LEATHER TIRE

NON-SKIDDING :: :: PUNCTURE PROOF



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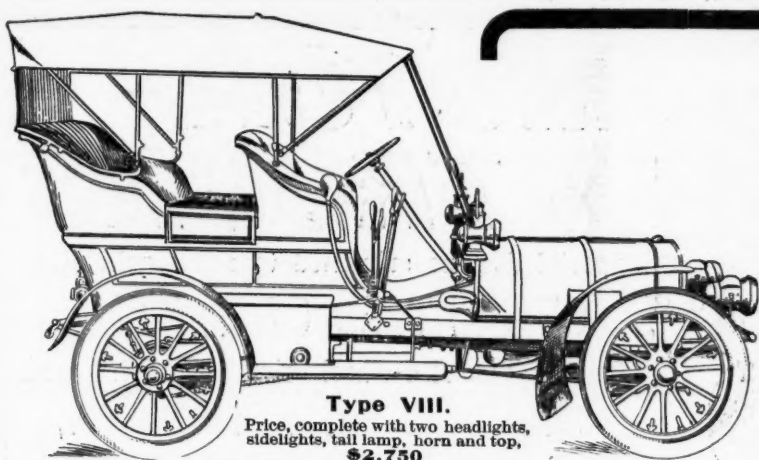
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Acme Motor Cars

Are what the name implies—"The Acme of Perfection" in every detail of construction, and in careful workmanship. The cardinal features of the ACME are Simplicity of Operation, and High Power in proportion to weight.

Touring Runabout, Semi-Racing Body. Complete headlights, side lights, tail lamp and horn.

A RUNABOUT BUILT LIKE A RACING CAR, \$1000

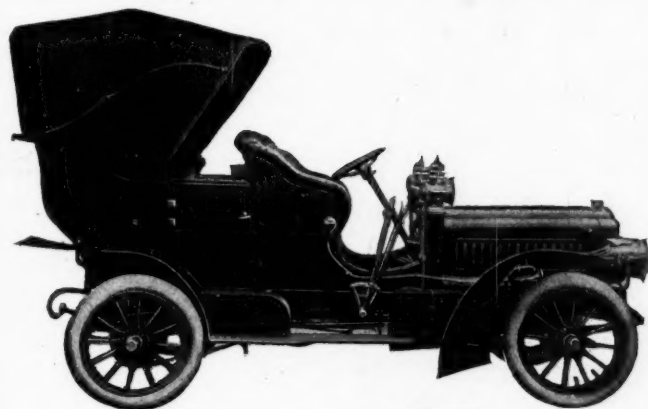
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Boston Motor Co.,
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THE 1905 Thomas "FLYER"



50 Horsepower--\$3,500

Every '04 customer a satisfied one. We have no excuses to make.

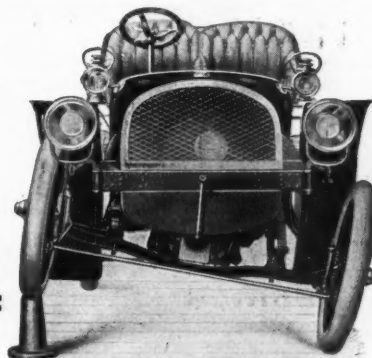
More '05 Thomas Cars sold in New England than of any other two makes of large touring cars combined.

Only an early order means an early delivery.

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1202 Niagara St., BUFFALO, N.Y., U. S. A.

Members of Association of Licensed Automobile Manufacturers

Wheel Raised
a Foot



Body Level

THE MARMON

"A Mechanical Masterpiece"

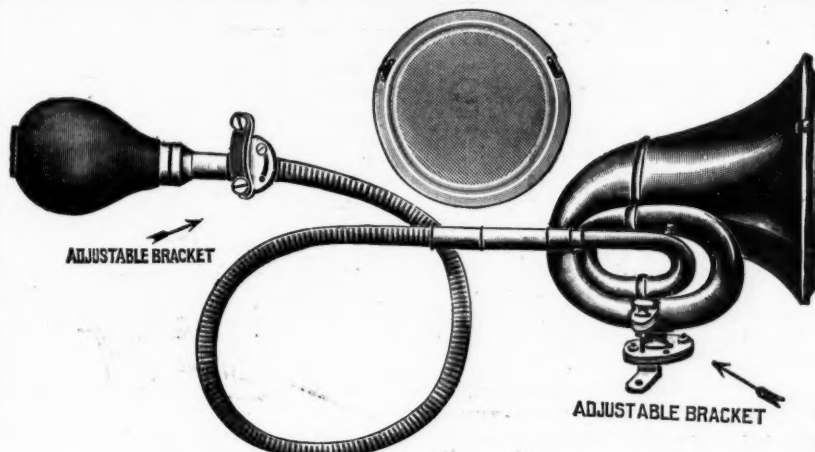
This picture shows how the Marmon meets a most exacting test of flexibility—without compressing its springs. No other car can do it, for the reason does not lie in springs, but in an exclusive Marmon feature,

DOUBLE THREE-POINT SUSPENSION

Cast aluminum body on one frame, simple accessible oil-tight mechanism on another frame, each suspended on three pivotal points, eliminates the binding and twisting strains inevitable in the customary rigid four point suspension; hence means fewer parts, longer life and greater efficiency. The gentle sway of the Marmon body over the roughest roads is unknown in any other car.

Rigid shaft drive, without Cardan joints; quiet, unique, air-cooled motor; positive automatic force lubrication that absolutely marks the end of oil troubles. Booklet No. 1 describes it.

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The latest European idea of a horn, made with an extra coil in the body of horn, which produces a deep and melodious tone. Two sizes, \$10 and \$12 each. 40 other styles and sizes in stock—brass or nickel plated. Catalog mailed on request.

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Tires! Tires! Tires! Before you place your order elsewhere write us. **Tire Repairs**—We cover your tires with leather treads, or rubber treads, vulcanize free with pneumatic filling and general tire work. 28x3 single tube tires, \$15.00. Get our other prices.

Engines for those who wish to put new power plant into their present cars we offer the engine and transmissions used in above Chassis. Specifications furnished on application.



No. 1 Engine



No. 1 Transmission Planetary

Prices.
12 h.p. Engine, double opposed, \$250 00
16 " " " " " " 275 00
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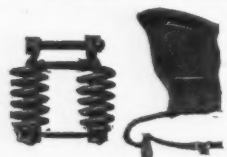
Transmission, Sliding Gear.
8 to 16 h. p. Write for Prices
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8 Horse-power Single Cylinder Engine, Horizontal type. Price, without accessories, \$100; with accessories, \$125.

8 Horse-power Transmission, Planetary type, \$38.00.

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Absorb all vibration. Easily attached.



Spark Plugs, 30c to \$2.00.

Coils, \$5.50 to \$38.00.

Carburetors, \$7 to \$18.

Leather Coats—Norfolk, sateen lined, soft, pliable, regular \$14 coats for \$8.90, while they last.

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Address the Company.

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We reserve a part of our Bulletin for your accommodation—we can help you sell—write us. Send for our Bulletin. Tell us what you want and the price you wish to pay for a car.



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White \$950 Touring Car

Single or chimed. Blows from the exhaust. Write for prices and description.

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of every description
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KING DODO HORN BLOWERS

You blow the Horn with the pressure of your foot without removing your hands from the steering wheel or controlling levers, thoroughly overcoming all disadvantages of the old rubber bulb. Is attached to side of car in convenient place to operate with the foot. Made for either right or left side. It is made entirely of polished brass and elegantly finished.

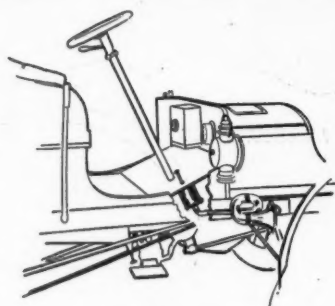


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For Sale at all Garages and dealers in Auto Supplies.

Showing blower attached to the under side of foot board. It can be placed to operate with either right or left foot as desired. It is not so elegantly finished as style No. 1, as it goes under the car, but is altogether cheaper and quite as efficient. These Blowers will never wear out and always ready for use. Will produce a greater volume of sound than by any other means.

Prices on Application.

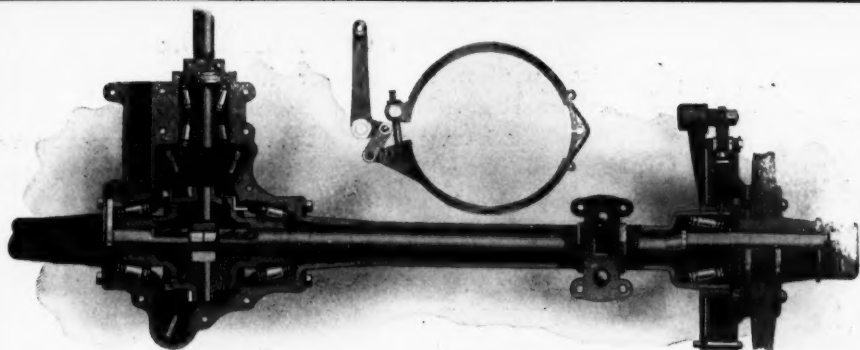


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THE MOST PROMINENT AUTO BUILDERS USE OUR AXLE.

TIMKEN ROLLER BEARING AXLE CO.

Bevel Gear Drive Axles
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Chicago
Gentlemen

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Yours with best wishes
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Mr. Gray finds his investment a paying one—can't we interest you as well? \$2.00 per year, less than 4c per week—let's have your subscription by return Mail.
MOTOR AGE, 1303 Michigan Ave., Chicago

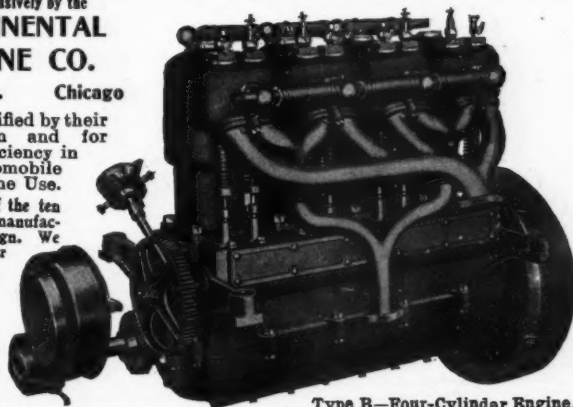
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Are identified by their Perfection and for their Efficiency in both Automobile and Marine Use.

This is one of the ten types that we manufacture and design. We have particular types of Engines and Transmissions for Pleasure Vehicles, Trucks, Railway Apparatus and Marine Crafts.



Type B—Four-Cylinder Engine.

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"COAT
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MAIL"
Tire Protector

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1908 Broadway
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Has overcome the four mechanical weaknesses that make the tire problem the greatest drawback to motoring, namely (1) Puncturability, (2) Skidding, (3) Rim Cutting, (4) Tearing from Wheel, not to mention the general wear and tear.

The "COAT OF MAIL" is **absolutely unpuncturable**.

Its teeth cannot calk up, but will give traction on any going.

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Your tire expense is reduced **at least two-thirds** and all the time the tire is absolutely protected against puncture, protected against skidding, protected from wear and tear, and cannot possibly pull off from the wheel. And there is no loss of resiliency.

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The Only Lock that
is a Lock

**The B. & J.
Lockswitch**

Applicable to any car. As reliable as a bank vault lock. As long as you have the key your car is safe.

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RAISED EVERYWHERE

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"The World's fastest and safest." Learn from personal use how much better they are than any made in America. Years of European experience with swift and heavy cars brought about its present perfection. Over 90 per cent. of the new world's records are due to Continental Tires.

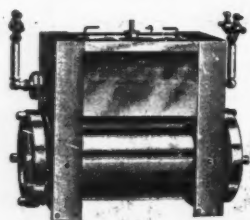
Send for "Opinions." Address Department M. A.

THE CONTINENTAL CAOUTCHOUC COMPANY,

EMIL GROSSMAN, General Manager

Factory: Hanover, Germany. 298 Broadway, New York City

Samson Non-Skid Attachments on Continental Tires now in stock.
Send for prices.



Columbia No. 3 Generator
Capacity 54 ozs.



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Capacity 32 ozs.

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1905 VESTA 1905 IGNITION BATTERY

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9½x3½x8½, Price \$18.00
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HARRIS OILS MAKE SPEEDY RUNNING

They afford the necessary lubrication, leave no deposit, do not carbonize in the cylinder or soot the spark plug. Their superior qualities have been proved by the most exacting tests on American and Foreign Cars.

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Ammeters, 0-15 Ampere - - \$4.50

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15 Ampere, 6 Volts - - - 6.00

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Tom.

WILL WORK FOR YOU

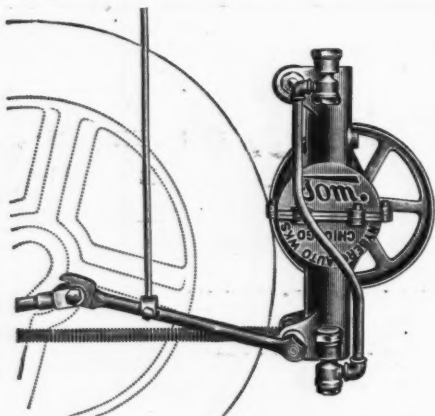
He will make your motor pump your tires, and give you compressed air for cleaning upholstery and machinery. He is simple, effective, durable, and can be attached to any car.

Price, \$25.00

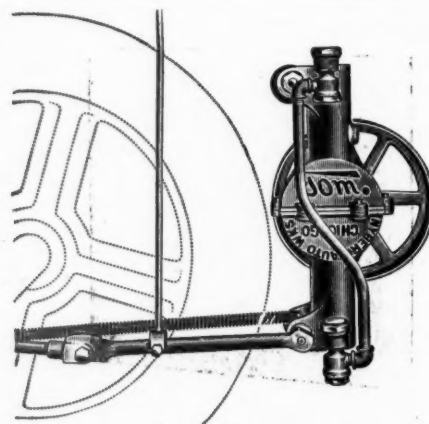
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Chicago U. S. A.



By pulling the vertical rod the toggle joint on the horizontal rod passes over the center and the spring is allowed to press the pump up against the fly wheel.



When through with the pump press on the vertical rod so the toggle joint goes back over the center and the spring will hold the pump away from fly wheel. Will work in any position and fit on any machine.

Packard Enameled Ignition Cables

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REMARKABLE TROUBLE-SAVERS

Thoroughly and permanently protected by woven thread coverings, saturated with flexible enamel films, set by high heat. Unaffected by heat, grease, oil or water. *Send for Booklet "G"*

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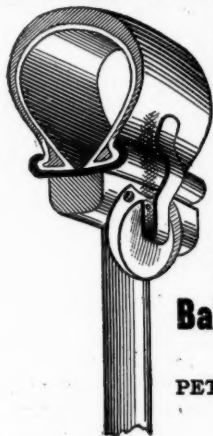
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Double Grip Control
Brook's Motorcycle Saddles
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Get Catalogue

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Save your Tires by using our Alarm. It gives a warning note when the tire for any reason begins to deflate.

Price 50c. a piece
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Ask your Jobber for it.
Special size required
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PETERSON & DRAPER, Sales Agents
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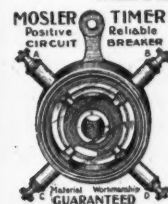
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They ACTUALLY "SPIT-FIRE"
while others spark only

BASE { Facilitates Sparking. Makes Plugs Spit-Fire.
Acts as Condenser of Electricity.
Protects Insulation and Sparking Points.

STANDARD SIZE, \$1.50, Postpaid. SPECIAL, \$2.00
With Patented Protector, \$.50 additional.

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INSIST upon Name and Patent Dates.
BEWARE of Valueless Imitations.

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Is Constructed on a Scientific Basis.
WRITE FOR LIBERAL DISCOUNTS.

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Two-cylinder Herz Type Timers, \$4.50;
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Im. De Dion Spark Plugs, 35c. each.

French Horns, 13 in. long, 5 in. bell, complete with bulb, \$2.20 each.

Gasoline Testers, guaranteed, 35c. each.

Other Novelties.

Write for Catalogue.

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Usable like this, narrow base,
or set up, broad base

ASK YOUR DEALER,
or we deliver in the United States and Canada.

JERSEY BRAKE CO.

Green and Columbia Sts., NEWARK, N. J.

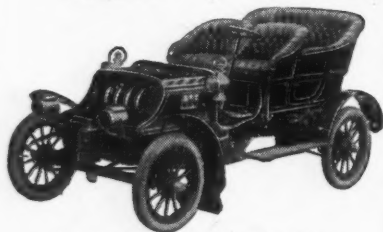
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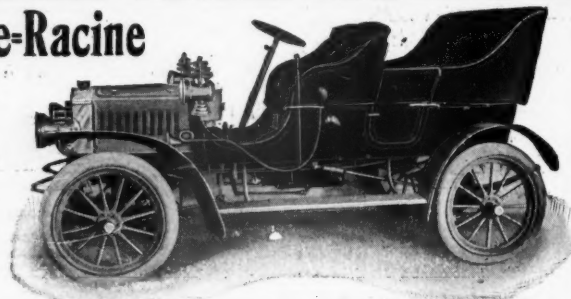
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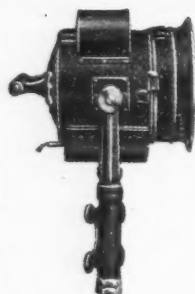


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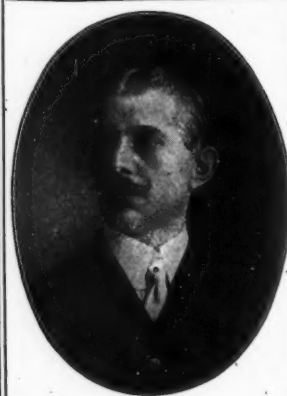
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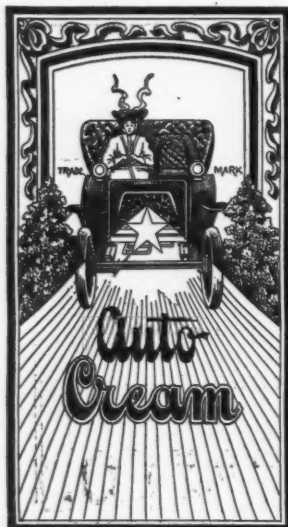
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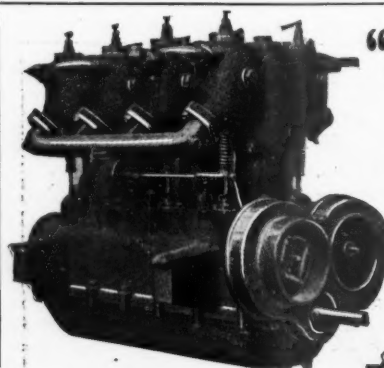
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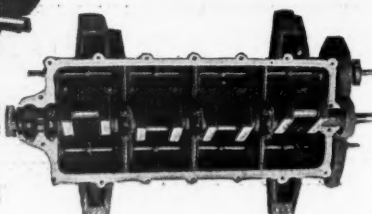
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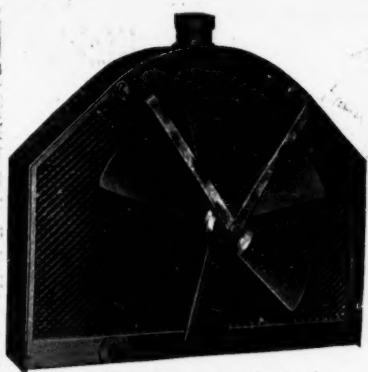
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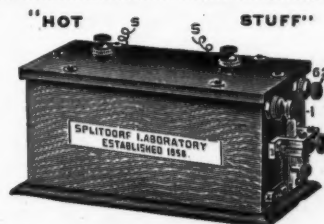
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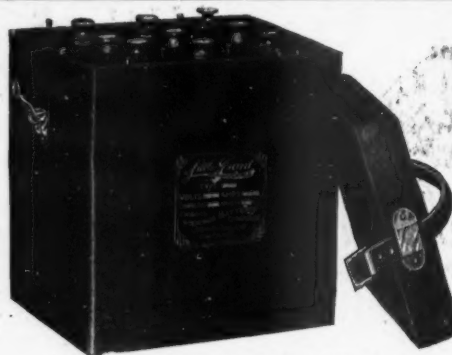
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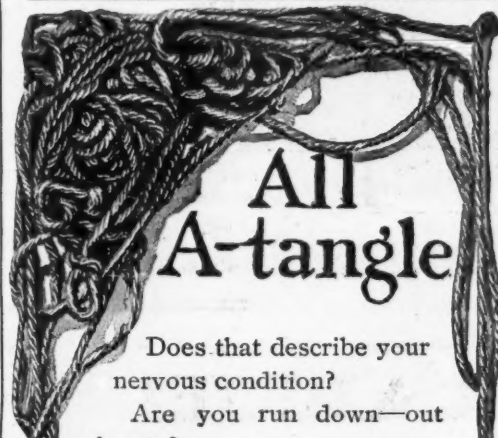
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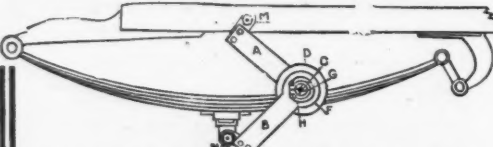
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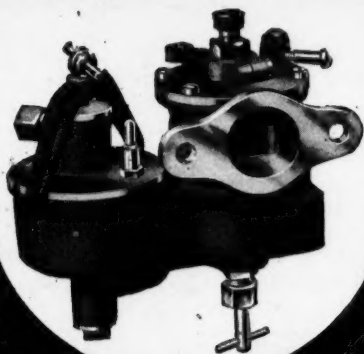
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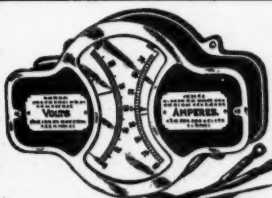
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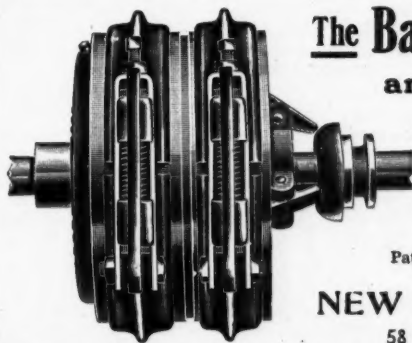
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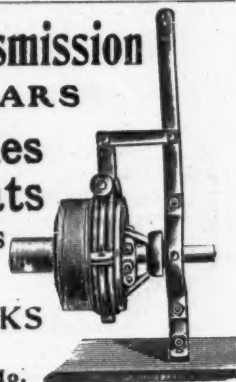
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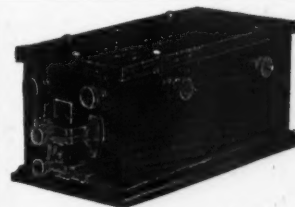
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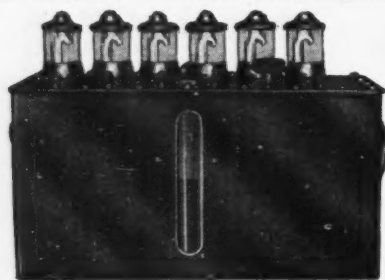
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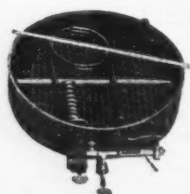
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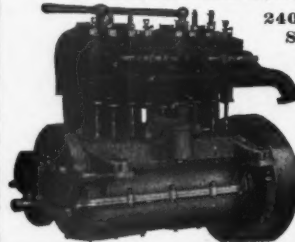
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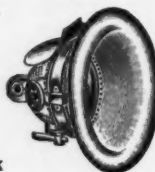
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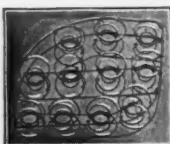
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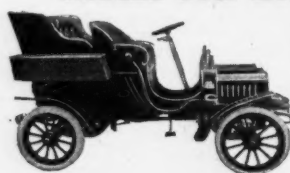


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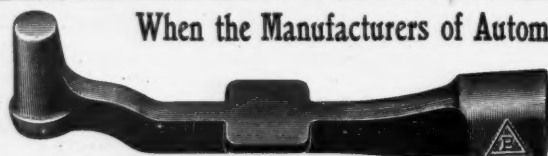
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